

Canadian Computer **Wholesaler**

THE MONTHLY FOR RESELLERS

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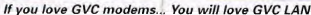
PENTIUM PRO COMPUTERS

Driving the Dream Machines



Scrutinizing the Independent Retailer
Multimedia may be Ripe for Business
Videoconferencing – Just Around the Corner?
Reweighing the Internet Threat
NT 4.0 and Your Customers





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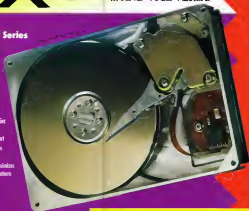
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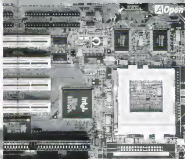
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OPPORTUNITY PERSISTS FOR THE BRAVE



We've all heard that much-loved parable of the half-glass of water (but why not view it around again — with a channel twist, please).

The down-brodden, pessimistic profiles, faced with such parables as intensive competition, tiny margins and unemployed staff looks at the proverbial glass and says "This glass is half-empty."

On the other hand, the second reader, an optimistic hold-on-type, studies, contemplates the glass and counters "No, this glass is half-full."

That's all well and fine, and no doubt we all applaud the second party for their fortitude and good will.

But wait, there's yet another reader at this party. This cheeky person takes a look at that glass, and sees an opportunity. Before the others think of it, they snatch up the glass, mix a fabulous secret recipe drink, top it with exotic fruit and sell it for a hefty profit. Then, quickly, before the others find some more glasses, our friend reader sets up a business, expands the drink line, researches gourmet pies and muffins, and grabs a strong foothold on the market.

Get the point?

It may be overly simplistic, but such is the nature of parables. And the point is — sometimes it's just too easy to get caught up in viewing at the facts-of-life, the computer industry's competitive margins are often small, vendors and distributors are most concerned about their own profits, and customers are looking out for themselves. (Of course, part of the solution comes from embracing those great, rare & real, add value, establish mutually beneficial partnerships, and truly service your customers.)

But more importantly yet, risk yourself — yearly, monthly, weekly and daily — where is the opportunity?

This issue our test lab examines and compares the latest in Pentium Pro systems, in "Driving the Dream Machine" (page 32). Edward Trapanio in "Macintosh's move — is this the big year?" (page 51) also views the technologies and opportunities surrounding the maturing market. Jeff Evans in "It Takes Two To Tango" (page 18) examines the technologies shaping the emerging computer-based videomaking market, and columnist Alan Zisman takes a frank look at Windows NT 4.0, (page 47).

This industry of ours moves incredibly quickly. Learning made for the moment, the challenges of staying current and moving

old inventory, the fast-paced of information technology means continuous opportunity. As emerging technologies open new markets, enable new applications and change the way society itself functions — opportunity abounds for those far-sighted enough, and bold enough to seize the day.

This month, is *The Independent Reader — A Special Blend?* (page 14), Paul Weinberg examines some of the pertinent issues facing independent readers, and points to the point looks at how some Canadian readers are rising to the challenge and finding success, in spite of today's tough market conditions.

In today's market, one of the biggest forces shaping change has to be the Internet. As the popularity of the Internet started to swell, we all heard the warnings about direct-to-user software sales cutting out the reader. And, indeed, it's happening. Moreover, the Internet is easing the communication process between the vendors themselves and the end-users, facilitating easier direct sales of hardware as well.

But — the Internet is also driving the sales of e-services, peripherals, software, networking products, and creating as consumers and businesses are clamoring to hook up to the wired world, and are demanding adequate technology to do the job properly. This issue in "The Internet Impact" (page 28) by Paul Latta, we see that steps of you are carrying your mark on cyberspace, following opportunity boldly go.

We at *Canadian Computer Wholesaler* are also growing forward.

You have no doubt noticed changes going on here over the past few months, and we'll state over the coming months, as we strive to deliver a product that best meets the needs of you, our readers. We'll love to hear from you and truly value your feedback and most importantly your suggestions, so to what types of information, news and features will best serve your needs as Canadian readers. You can mail or fax us your comments, or E-mail me directly — at greg@ccw.on.ca.

Meanwhile, let us encourage you to contemplate the opportunities that present themselves — whether that means developing expertise in an emerging technology, engaging in unlikely but profitable business partnerships, or finding some whole new slant on a common service.

Because, after all is said and done — it matters little whether the glass is half full or half empty. Rather, the question is: What can you do with that glass?

Greer Carrison
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How to succeed in computer reselling

Alright, I admit it. This is an overused title for a column. The space is too short to do the subject justice, and no one really knows all the answers to success. I have however observed that a number of people start out reselling with just a few computers and not much else.

Sailing with the wind

When I was a reseller, my friend and I set out to sail a little sailboat on Okanagan lake in the B.C. interior. We didn't have any training and really didn't understand what was happening with the wind. We just saw that if you put up the sail, the boat would move in the direction the wind was blowing. We flew along for awhile thinking and hoping as we moved rapidly through the water. Everything seemed great. Then we got to the end of the lake and tried to figure out how to go back. Not really understanding the laws of sailing, we ended up stuck and eventually capsized and had to be towed back to dock support and no more about the rest of the wind.

Which way does the wind blow?

I observe, in my capacity as publisher of *The Computer Paper* and *Canada Computer* titles, that there are a number of people who get into computer reselling without much more training than what we found and I jumped onto that sailing boat. With our publications at all major markets across Canada, we get a good cross section of resellers doing advertising in our publications to get to their target markets. Although it is not an absolute indicator, advertising in one of our consumer-oriented publications is often a sign of life for a reseller in the major markets.

There are a wide range of decisions to advertising campaigns for distributors, manufacturers and software developers. These campaigns are based on product cycles. As the cycle begins, they launch campaigns. When the product waning down they stop their ads until they have something else to promote.

But most resellers live to sell and tend to run their ads continuously, month after month, year after year. When they stop advertising, it is often because the company is closing or going bankrupt.

Not to minimize the difficulty of working in the current low-margin environment, it would seem that some would be reseller's business fail-

ures happen because of a lack of basic business skills. If a reseller doesn't know how to do a break-even analysis, read a statement, do a business plan, build a spreadsheet, figure out their cost of sales, or their inventory turn ratios, they might want to consider entering some area as their own business education. It is some of the most probable learning they will ever do.

Monitor your business - yourself

Some people think that monitoring is like medicine. With your health, if you have a problem you go to the doctor. But in many cases, by the time a problem develops, it is too late. Just as many people are taking charge of their own health by eating right and exercising regularly, resellers need to keep themselves informed and involved in the health of their own businesses.

Knowing the basics of accounting is like learning to monitor your own culture, taste, blood pressure and heart rate.

These days there are numerous alternatives to getting a business education. There are many community and private colleges that offer short courses. A full-fledged Bachelor of Commerce or MBA degree may be overkill if you are already engaged in your business. But I do know of people who have gone back for an intensive executive MBA degree and found it invaluable in their business.

It is unfortunate that, with so many people starting their own businesses these days, basic business training is not part of the core curriculum in high schools.

One variable

While there are numerous other aspects to the success of a reseller's company, including being in the right place at the right time, location, good staff and building strong relationships with distributors, having a business education can help enormously in making the right decisions to grow a company.

Enjoy the ride! **DAVID**



Douglas Alder
Publisher

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Customers look for demonstrations of a dealer's ability to address their most important issues.

If they're service-focused, they will query you about warranties, service policies and so on. Naturally, many customers are also price-focused. It's been said many times before, but it's worth repeating: Listening carefully is your most effective selling technique. Watching closely too, can be a strong indicator of personality types and where in the sales cycle your customer is.

I was reminded of an article I read a few years back (in which a British magazine profiled the kind of customer they got [while posing as customers] and the deals they were offered after one, two, three or more times into a store). I believe the basic principle works in virtually all selling scenarios.

It would like this:

The first time, a customer (qualified using whatever criteria of the "needs, budget and timeline") line of questioning works for the situation) gets a salesperson's standard deal and tagged-on extras.

This might be steeper price, or something close to it (but we'll assume that the system is an appropriate one for the customer's needs and budget). Because many people are shopping around, the magazine found that the good deal's didn't (and shouldn't) usually fall from the tree immediately. The better the salesperson can overcome all the customer's objections, the better the chance of closing the deal, but many people won't commit on a first meeting.

It's The Dance, and they are just eyeing the prospect. Answering all questions (I have found the Internet to be a good resource in nearly any category) and building rapport with the prospect is the salesperson's best strategy. With a business card and a quote in their hand, the customer is out the door.

When the Customer Comes Back

When the customer seeks out the salesperson for the second time, eyes will of course light up—they're come back!

These customers generally fall into two categories: they wanted to ask about something or they wanted to ask for something.

Assuming their remaining questions can be satisfactorily answered, the customer who moves to start a deal now often asks for or responds well to a pitch. "There is the software, and we've got a deal!" In other words, this is the "buy now bundle" that increases many value-oriented shoppers.

Personalities Play a Role in Buying Process

by Gwynne Bennett

Reading Between the Lines

Those who raised voices during their second time that the salesperson was unable (or appeared unwilling) to address, are usually going to go elsewhere (or, an on-the-ball retailer will be call them back with a timely answer and overcome all their objections).

The third time is in the Sharp Pencil zone, where the customer who has the haggler's instinct will try far—and usually obtain—the "manager's best deal." Whether the price is flexible or not, the salesperson cannot do much more to facilitate the sale.

But what about those people that still won't bite? According to that British magazine, those who came back a fourth time are rightly regarded as time-wasters, and aren't likely to buy.

Leverage the Customer's Enthusiasm

The most effective salespeople are those who participate in—and leverage—the customer's enthusiasm for the product category they have expressed interest in.

In my case, I kept a huge library of demo disks, sample presentations, and resource materials that I could pull like a rabbit from a hat to address my customers' specific questions as precisely and efficiently as possible. These days, I often use the Internet Search engines as an additional spot for information acquisition. You will undoubtedly have your own tools and methods. You should be able to easily spot the customers who have a little extra time and delight in indulging in a technology demonstration or application demo that spikes their imagination.

Customers focused on price/performance ratios typically use a "bell curve" line of questioning to determine their best set of choices. "What do I get with the new model up?" and that sort of thing.

Most customers are remarkably consistent in their patterns. By determining your client's basic personality type, you can better understand them. Now, I'm not going to delve too far into simplistic pop psychology here, except to say that body language and personality types can be strong indicators of how your customers like to be dealt with. Attentiveness, experience, and other states have strong body language indicators.

There is evidence to suggest that even the way a person's eyes shift as they are speaking tells a lot about their mental state. Practitioners of the theories of neuro-linguistic programming have pointed out that looking to the left is usually an indicator of work-

ing from memory, while looking to the right suggests a creative thought. Others have noted that much can be gleaned from the way a person moves their body during a conversation. People send fairly obvious messages, the theory goes, and respond well to others who send compatible signals.

While it is not my intention to suggest that people are as one-dimensional as any superficial observation might suggest, the problems of some personality conflicts are at the root of most sales that fall through. Some people are visually focused, and may say as much with comments such as "I see" and "I've been looking." These people respond well to demonstrations, data sheets and brochures.

Others are the listener type. "I heard," and so on. The listener likes to be listened to while he or she states their requirements and concerns in detail.

Others are conceptualists, who tend to express themselves in abstractions. "I think," and "What do you think?" Like listeners, conceptualists prefer explanations over descriptions.

Others are emotive and tell you how they feel. These people want emotional solutions, and prefer low-stress experiences.

Consider a few things: each of these personality types has an opposite:

There are customers who are negative visual types (old fashion statements, etc.). There are people who don't listen well. An anti-conceptualist tends to be strongly pragmatic, a concrete and linear thinker.

And of course, there are anti-emotive types who are shy, passive or who have difficulty in expressing themselves—at least at first.

Keep in mind that almost everybody is a mixture of more than one personality type. Although there will always be customers who

are mostly and easily "sold," the new breed of shopper is savvy enough to recognize a salesperson's ploys to extract information. **Gwynne Bennett is the managing editor of The Computer Paper, and is a former computer teacher. Based in Vancouver, he can be reached at gwynne@tcp.ca.**



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Bay Networks buys LANCity in US\$59 million purchase

Bay Networks officials have announced plans to acquire LANCity, paying in the US\$59 million purchase of the cable modem maker as a move that will benefit both vendors, while ultimately helping to lower prices on data access to the Internet by businesses and consumers.

During a teleconference, Bruce Sachs, vice-president of Bay Networks' Internet/Ethernet Business Unit (IEBU), said that the LANCity acquisition is congruent with Bay Networks' goals of providing virtual private networks (VPNs), as well as end-to-end networking with "edge" connectivity to all access technologies.

Bay Networks, he noted, already provides edge access to technologies such as frame relay and ISDN (integrated services digital network) for example.

The large cable infrastructure already laid down in the U.S. was originally conceived of only for "multimedia" purposes, Sachs acknowledged. But now, he added, the cable TV entertainment industry is reaching a "turn-of-point."

Meanwhile, 15 per cent of the U.S. population today is responsible for 75 per cent of Internet usage, he said. Power users of the Internet are now looking for faster means of access.

It is now feasible for Bay Networks and LANCity, working together to develop standards-based technology that will enable 10Mbps Internet access over existing cable plants, Sachs told the analysts and reporters. By building volume, the two companies will help to drive down prices, asserted Bay Networks' Sachs.

LANCity, he repeated, will have access to all of Bay Networks' systems, including Bay's worldwide sales force.

Merisel will sell European business to CHS Electronics

Computer distributor Merisel Inc. said it is selling almost all of Merisel's European operations—in addition to its Latin American and Mexican businesses—to CHS Electronics. The deal is valued at about US\$160 million.

CHS is acquiring a business that employs about 1,800 people and is expected to earn about US\$1.5 billion in revenue in 1996, officials said.

The deal is expected to close at the end of September or as soon as all conditions to closing are satisfied.

Merisel's distribution businesses in Austria, France, Germany, Switzerland, The Netherlands, and the United Kingdom are included in the sale. An export operation that serves Latin America from Mexico, along with a distribution operation in Mexico, are also involved in the deal.

CHS spokesperson Chung Tsi said some layoffs are expected, mainly in the back office and non-earning portions of the business, it is buying. He also said some consolidation is expected to occur because Merisel and CHS offices overlap in five European markets.

Merisel officials said it will use the cash from the sale to pay down debt as well as fund its remaining North American businesses.

Earlier this year, Merisel pulled out of the Australian market, to everyone's surprise. Merisel's total in that market, Tech Pacific Holdings, bought Merisel's operation and promptly closed it.

Now Tech Pacific holds the lion's share of the information technology distribution in Australia.

Novell's CEO Frankenberg resigns his position as CEO

Novell Inc.'s board of directors has announced that Robert J. Frankenberg has resigned as the company's chairman, president, and chief executive officer (CEO).

While the company has already begun a search for a new CEO it has named board member John A. Young, a past president and CEO of Hewlett-Packard Co., the new chairman of the board, and Joseph A. Manning, previously executive vice-president, worldwide sales at Novell, its new president.

Frankenberg was with Novell almost two-and-a-half years, during which time the company bought, and then sold, WordPerfect. After joining the company as president and CEO in April 1994, he was appointed chairman of the board in August of the same year.

The purchase and subsequent sale of WordPerfect is sometimes used as an example by some observers of a company that has been lacking in direction and focus. Also, increased market competition and lackluster revenue growth could have been a factor in the se-

parate move, say some analysts.

But Novell's official line is that the analysts and observers have been wrong, and that Frankenberg, who actually joined Novell after the WordPerfect purchase was announced, has been instrumental in the company's return to its emphasis on networking software after the sale of the company's personal productivity products, such as WordPerfect, and its Unix software.

Peter Thoop, a spokesman for Novell, said "The board and Bob Frankenberg agreed that it was the right time for him to leave. There aren't differences in strategy, there aren't differences; they are issues which relate to short-term issues with the company. What this is about is a kind of unfolding of the refocusing of Novell's network software."

He continued, "John Young has asked about the board seeing an opportunity for new leadership that aggressively takes advantage of the market opportunities within the network software place."

Spider Technologies is now Netdynamics Inc.

Looking to leverage off a successful name brand, Spider Technologies Inc. is changing its name to Netdynamics Inc. The company helped bring Java to business applications, with its Netdynamics as rapid applications development (RAD) tool.

The company says it will continue to follow its original mission statement which enables the development of software tools that can improve the way businesses and individuals interact with information on the Web. Presently, Netdynamics concentrates on software developers who want to bring commercial-grade Web/database applications to market.

Zack Bass, Netdynamics' president and chief executive officer, said "The Web represents the most important medium for enterprises to move into the 21st century. In a world where business structures and technology are in flux, we hope to serve as a foundation for companies to grow in this dynamic world. Our new name reflects this vision."





Window To Your Mind's Eye

Samtron's 17" monitors offer pictures so crisp, so clear, they truly provide a window to your mind's eye. Winner of *Bite Magazine's* Best Monitor Overall for Image Quality award, praised by *Windows Magazine* ("You'll Like What You See") and highly recommended by *PC Digest & Reviews Report*, Samtron's 17" monitors offer flicker-free resolution, sharp edge-to-edge focus and energy-saving features perfect for the home or office.

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Sony brings the Web to any TV

Sony Electronics said it will join the Max at Philips Consumer Electronics Co. Zurich Electronics, and Gateway 2000 (NASDAQ:GATE) with a product that will combine World Wide Web browser capability with a television screen.

But Sony's product will be a bit different from most of its competitors in that its set-top box will work with any TV.

Sony's new line, called the Sony WebTV Internet Terminal model ISTW100, will roll out next month, according to Rick Chawy, Sony spokesperson.

Clancy also said that electronics retailers are so excited about the new product, they encouraged the company to introduce the toy again a month earlier than Sony had planned.

Sony's terminal is a low-profile device that is designed to be unobtrusive on the TV, and is co-brand with cable TV boxes and even satellite systems. The unit's 384Kbps modem lets TV-Web surfers connect at the highest speed possible with an analog modem. Clean, subtle.

The Sony WebTV Internet Terminal is especially designed to work with TVs that have Picture-in-Picture capability, so that if a Web address pops up during a program or commercial, a viewer can access the site as shown in

same time as the Web site is activated?

Sony's terminal is also equipped with Web-Hiding SoftWash software to prevent kids from viewing inappropriate material.

Other features include personalized E-mail addresses and up to five user profiles per household.

Options for the INT-W 100 include a wireless infrared keyboard, and a power adapter for use with modular PC systems.

[Intel, Cisco shows Net multimedia](#)

Andy Green, chairman and CEO of Intel Inc., recently outlined technology designed to deliver full multimedia content over existing customer lines. Now, Cisco Systems Inc. and Intel joined with MCI to announce the company's intentions to bring this technology to market.

Greene said the computer industry does not have to wait for cable modems, digital subscriber lines (DSL) or fibre-optic lines to supply high-quality multimedia content. He admitted any of these technologies could possibly provide a faster and better Internet experience in the future, but the Internet community does not have to sit and wait for these developments to hasten a more pleasant experience.

To that end, Intel and Cisco are providing standards for the Internet Backbone and dividing computers which will allow the existing system to deliver full multimedia content.

A new version of Cisco's IOS (Internet working operating system) incorporates last-mile IP (Internet protocol) Multicast, Resource Reservation Protocol (RSVP) and Real Time Transport (RTP) specifications. Cisco IOS and last-mile PC RSVP form a distributed environment which allows video high-quality audio, document sharing, and live conferencing to traverse across today's Internet.

Greve also announced a new "hybrid appliance" which would load a certain amount of data on a desktop or server hard disk and encode the amount of transmitted data of an Internet-based application. Hybrid appliances play a significant role in the development of this software-enhanced system.

What does PC-BSP mean to the average desktop customer?

According to sources, it intends to compete in the first half of 1997 customers of MCI Internet service should have video, audio and live conferencing streaming across their desktops. At the same time other Internet service providers should be moving in the same direction.

id's Quake hits retail with a shareware version

Id Software's widely anticipated retail roll-out of its hit game Quake is subject to its state thievers across the world. In what is seen as an unique distribution program that will cut the number out of a significant portion of the sale, gamers can buy low-cost shareware for just under \$35 US, which can be purchased directly from the company for US\$45 plus shipping.

The US\$10 shareware version includes about one-quarter of the full version, and can be bought at computer stores, major outlets, bookstores, music outlets, hardware, video rental outlets, and for the same convenience stores.

David Cole, president of game research company EDC Intelligence, said "This is the most anticipated title of the year. It has all the elements of a blockbuster."

"But when all is said and done the most important aspect of his announcements might be the ill-orchestrated deal. Retail mergers are very thin agency, and this system cuts the retailer out of most of the sale. If a world link for this to be the standard way popular programs are sold, and thus a not retail news for the multiple retail outlets."

The retail launch of *Quake* marks the first time that id has distributed their own title under the id label. The shipping version of *Quake* has the full version encrypted on the CD-ROM. After purchasing the shareware CD-ROM game's worthy to purchase the full version, you call id to get inside to unlock the rest of the game.

NetScape integrates Micromedia technologies

Netscape Communications Corp. says its latest licensing agreement with Macromedia Inc. will provide Internet users with a more seamless graphical electronic world. In what is called a "comprehensive licensing deal," Netscape has agreed to integrate its, macromedia's Shockwave plug-in and Flashworks technology into future versions of Netscape.

Some day in the future, the Internet is expected to be interactive, teeming with full-motion video and user-plug-in, an active role. Before such an Internet arrives to the average computer desktop, today's Internet has to evolve. NeXTage says the next step is a full integration of multimedia technologies, which for now means sophisticated user, great graphics and keyboard control. **10025**

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The independent retailer — a special breed?

Making it all alone is a challenge at the best of times. What does it take to truly succeed as an independent?

By Paul Weinberg

For the small independent computer retailer — competition is fierce from all directions — including other independents, direct vendors sales, the computer chains, and the electronics supercenters. But despite the trials and tribulations inherent in going it alone, some Canadian retailers aren't just holding on — they're finding success and carving a firm foothold in their own markets.

Imagine, for example, having a second generation of customers coming through your doors. Well, that has started to happen at Marktron, a small independent PC retail store in the downtown Toronto business district. "I had someone come in whose father had bought his first PC here 15 years ago," says owner Ron Desha.

With five per cent of independent retailers going under every year according to retail analyst John Winter, it is unusual to meet someone who can boast about having been in retail solo since 1975.

A Winning Strategy

Desha's explanation is that his multi-million dollar operation has not succumbed to the relentless price-cutting for PCs endemic in this industry. He remembers arguing to no avail with one owner that a retailer no longer can sell products at a loss in the vain hope that it will be made up in sales volume, particularly when the competitors are increasingly supercenters and mass merchant chains. "I had discussions with a friend in the industry

who went from zero to \$12 million [in gross sales] and then went bankrupt. You can't survive on five per cent margins."

The Marktron owner made a decision, early on, that he would rather charge a little more than the chains but focus aggressively on the areas where they could not compete — customer service and depth of product line.

Desha has, for a long time, concentrated on selling portable PCs from laptops to palmtops. He says he is able to have on display in his shop perhaps up to 50 models of laptops from all the major vendors — IBM, Compaq, Apple and NEC — which is a lot more than what is normally on view in the supercenters and mass merchants.

"If you saw one of our stores, they're 30,000 square feet in size. You wouldn't call us independent anymore."

— Peter Parrish

But not all independent PC retailers are savvy enough to follow this recommended path for survival, according to Michael O'Neil, International Data Corp. (Canada) Ltd.'s senior vice-president, consulting services.

Their owner-operators, he says, tend to be "nack-heads" who have a deep understanding of their products, but are poor in terms of the retailing fundamentals, of which service is but one important component. On the other hand, he adds, "those understand the business of retail."

The Customer Service Debate

Further flying in the face of accepted wisdom, O'Neil also states that independents are not necessarily any better in terms of customer service than the chains. Independents are fine for walk-on traffic, but "the level of service provided [by them] is not good enough to attract repeat business."

While independents represent 40 per cent of all computer retailers in Canada, the IDC analyst expects this \$2 billion sector to shrink following a major shake-up in the industry.

Yet, this market is still valuable enough to entice the major distributors, Mervel and Egnon Micro, to embark upon marketing support programs for independent retailers. Mervel's national sales director of retail David Kiskowski, says independent retailers' lack of access to marketing and co-op programs is an important reason why they are "being eaten alive" by the chains.

Independent retailers who stop trying to "outpace" the chain stores and offer something different will thrive, even in the most saturated locations, says retail analyst Susan O'Dell, president of the Mississauga, Ont.-



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She maintains that personal service and after-market support can be the strongest sales held by the independents and is not likely to be matched by chains. "Nobody but the independent retailer can get to know the local market." O'Dell urges independent retailers to step outside their stores and take a close look at how retail stores in other areas of merchandising are managing to stay above water.

Yet, there are also factors beyond the reach of the independent, says the Markham, Ont.-based PC sales channel expert Bob Pritchard, president of R.J. Pritchard & Associates.

He notes that the modest size of the independents often shuts them out of volume discounts provided by manufacturers and disallows to the bigger retailers.

Electronic Distribution

In addition, the increase in the electronic distribution of software products via the Internet takes away what has been a good market for independents up to now, says Pritchard.

His advice is for independent retailers to shift their focus and even their identity.

"An independent retailer" is a negative word as far as Peter Parrish, manager of the

Calgary. "If you own one of our stores, they're 30,000 square feet in size. You wouldn't call us independent anymore," says Parrish.

In Vancouver, "the kids guys are dropping fast and furious," he adds.

From his perspective, independents do not lend to loss. They start off with an entrepreneurial zeal but something happens along the way and they lose interest or money and the business shuts down. If the outlet is profitable and has life in a valuable street location, the owner-operator sells it eventually to a large, more management-focused operation.

The Franchise Option

Others like Gerry Hartlin, manager of a MicroAge franchise store in Pembroke in the Ottawa Valley and a former independent dealer describes his own transition as a matter of "necessitation." It was the only way to rise above the normal Mom and Pop store.

It was in his sixth year in operation as an independent that Hartlin, then the owner of Hartlin Computers, found himself stuck business-wise and unable to expand. Fortunately, he had sufficient experience to qualify to become a MicroAge store.

"Hence (the Canadian franchise for MicroAge) does not take virgin stores. It

with all three vendors.

That was two years ago and Hartlin, whose operation grosses about \$1.6-million in annual sales, has not regretted the move.

One of the advantages of being a MicroAge outlet, he says, is that he is not subject to any rigid sales quota set by the Montreal-based Hartco. As a franchisee, Hartlin gave up producing his own line of assembled PCs. "It came to a point when it was difficult to source components."

It may be that Hartlin felt relieved as an independent retailer up against several competitors in a sales territory of about 40,000 people. A sense of "family" exists among MicroAge dealers who meet twice a year in conventions and discuss common problems without feeling competitive and nervous with each other.

Small-store royalties towards local computer dealers do not appear to exist in these price-sensitive times, says Hartlin. "People will go to [nearby] Ottawa just to save \$20 if they can."

Small and Loving It

Yet, some computer dealers are happy to remain small and retain their individual identity. "We don't expand for the sake of expansion," says Richard Lutz, the owner and operator of the Boss Computers Store in Calgary, in business since 1985 and employing eight people.

Situated in an industrial area with a warehouse, this multi-million operation includes small-and-medium-sized oil and engineering firms among its clientele, most of whom are repeat customers. "They are our bread and butter," says Lutz.

Among its specialties is network installation but the store also sells fax machines and cellular telephones.

Boss has one outboard sales rep but it sales mostly on word-of-mouth for its business.

What is Lutz's secret? It is not very mysterious, he answers, explaining that a retailer has to be flexible and be willing to keep up with trends. "You can't be stagnant." □□□

Paul Newberg is a journalist specializing in high technology, reporting and business, based in Toronto.

Revenues by Type of Dealer Business in Canada, 1995



In IM

ICC Canada Channel Definition: Dealers take delivery of packaged products and resell them in end users with little or no modification.

The three Dealer Channel segments are:

Corporate Dealers - sell to 101-100 companies have an outboard sales force and organizations are often also involved in systems integration (SE Capital, Int. Computer Knowledge Division).

PC Specialty Dealers are primarily small specialized (consumer only) store-front operations serving small/medium businesses and home consumers (Compuserve, Mac Warehouse).

Retail & Micro Merchants are large store-front outlets serving the mass market and carry a large mix of products in addition to computers (Future Shop, Radio Shack).

Source: International Data Corporation

Vancouver-based Doppler Computer Supercenters is concerned. "It's where we were six years ago," he says.

After the original owner sold the business, Doppler then expanded into three stores, one in Vancouver and two others in

wants stores with a track record."

As an independent, his applications to become the authorized dealer for IBM, Compaq and Apple had all been turned-down. But as a MicroAge outlet, Hartlin had no difficulty winning formal relationships

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It Takes Two To Tango

The videophone is coming! The videophone is coming!
(But it's not here yet) *by Jeff Evans*

In one of Scott Adams' Dilbert cartoons, the prototypical nerd Dilbert comes home with "the first videophone in town." He shows it to his dog, Dogbert, and then looks it up.

Much time passes, without much happening. As the episode ends, Dilbert mutters hopelessly, "I think I saw something."

This sums up in a nutshell one of the main impediments to the field of videoconferencing, to both resellers and end-users. Not many are hooked up yet. The future success of a videophone market will depend on there being a reason for enough people to share Dilbert's optimism to kickstart the market. This article will look at some of the opportunities and challenges of the videoconferencing or videophone market.

The Future Through The Peep

Deck Tracy, the detective hero of the funny pages, has had a secret TV for decades. Science fiction movie heroes and villains have had videophones since the 1940s. Telecom companies have featured videophones in their display booths at World's Fairs and trade shows since the early '60s (the concept of the videophone has been kicking around AT&T's Bell Labs since at least 1954).

In spite of all the optimistic predictions, prototypes and fantasies, though, who do you know who actually has a videophone?

Rather than being a cheap, simple to use, mass market commodity, two-way video communication has remained a rarity in everyday life.

High-End or Hacker Hobby, and Not Much In-Between

High quality two-way video is available, but up until now it has tended to be neither simple nor cheap. Videoconferencing services are offered by commercial A/V firms for business meetings and press events, but even

with the most sophisticated staff and equipment, the results can be awful.

At a recent teleconference to announce a donation by Sprint to help digitize the national archives, a group in Toronto was supposed to be linked to groups in Ottawa, the Maritimes and the U.S. However, the event was less than successful—with vague figures on grant screeners fading in and out already waving their arms, or the screen going black while distorted voices and static roared from the speakers.

Even when things go mostly well, if one has watched these videoconferencing events from behind the scenes, there is almost always a gut-wrenching moment of "technic panic" when the baseline link is down, or the network isn't bandwidthing, or the sound is off, or something. And for all this trouble, there is typically a high cost in terms of money and time to arrange each teleconference.

There has been plenty of good research by Canadian companies and universities in videoconferencing. A lot of useful knowledge has been gained through efforts such as Northern Telecom's Visio product, and research programs such as the University of Toronto Telepresence Project, the McLuhan Program's distance education seminars, and the Ontario Science Centre's Jaxon Project.

Yet all these efforts have yet to result in a consumer electronic product.

The Consumer Front

For relatively modest costs, Internet enthusiasts can cobble together a system of video camera, PC video capturing boards and software that will provide a crude videophone capability (such as CU-SeeMe). The main drawbacks are the onerous of tinkering



required, the modest speed and quality of the results, and the lack of real technical support. As well, the average modem speed of 28.8Kbps puts an upper limit on the potential for improvement.

Shareware or bargain basement videophone systems are not going to attract much loyalty from either resellers or demanding consumers, though they may help pave the way for more acceptance of the videophone concept.

A Lot of Noise on the Web

A search of the World Wide Web turned up 6,836 Web pages dealing with videophones, and 44,269 dealing with videoconferencing. There is a great deal of interest in two-way video in universities, both as a research project, and as an aid to educational communication. In terms of commercial systems being used, discussed and promoted, several offerings stood out in terms of user interest.

AT&T Videophone

The multimillion telecom giant AT&T actually released a commercial videophone product in 1992, along with a large series of evocative ads promising its version of a connected, multimedia world of the future. A portion of the launch and very interesting AT&T Web site deals with the AT&T Videophone, and what is significant is that all of the press material on the product dates from the period from 1992 to 1994.

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AT&T actively promoted the Videophone during this period, giving hundreds of them away to customers ranging from elementary schools to professional sports, and offering to send them to families scattered across the country to stage virtual reunions. None of this seemed to generate much excitement.

The quality of videophones over regular analog phone lines just wasn't good enough, when combined with the relatively high cost and complexity, as well as the nobody-else-has-one syndrome, to get many people to buy into the concept.



PictureTel

PictureTel Corp., one of the original pioneers in PC-based videoconferencing, claims to be the global leader in the market, and

seems to have a considerable 'lead share' except the two-way video community, especially in the U.S. Its Concord 4900 group videoconferencing system is widely used, and has recently been enhanced with a voice directed LaserLight speaker location technology that automatically aims and zooms a camera to focus on whoever is speaking in a group discussion.

T h e
P i c t u r e T e l

system also has been recently enhanced to run up to 16Mbps in line speed, to give top quality, 30 frames per second two-way video. PictureTel's products are aimed at corporate users with high

bandwidth network connections, good technical skills and a lot of money. The top of the line systems cost from US\$34,000 to US\$79,000, plus the 30 frames per second acceleration option (US\$7,500).

Perhaps reckoning that this level of product price/performance is likely to appeal only to the high-end corporate niche, on June 19, PictureTel announced a standards-based, software-only videoconferencing product that operates over regular phone lines.

PictureTel acquired the rights to Vivo Software's videoconferencing software, which allows multimedia PCs to be used as videophones. The software is intended to be bundled with compatible PC systems. It remains to be seen, as usual, how many PC users actually take advantage of this capability.

Intel ProShare

One rather surprising contender in the videophone race is the chip-making giant, Intel. Some critics have claimed that Intel only got into the two-way video business to provide a competitive application that would drive customers to buy more Pentium and Pentium Pro CPUs. However, Intel has a legitimate interest in expanding its activities to gain a foothold in the world of telecommunications: the company is a major manufacturer of chips for modems and other communications and networking devices.

ProShare is a well-engineered product, which has, according to a Canadian distributor, doubled its sales over the last year. ProShare is relatively easy to install and maintain, and is well suited for PC users who have ISDN or LAN connections.

CorelVideo

The most impressive Canadian-developed product for two-way video on a PC is also from a somewhat surprising source. CorelVIDEO, a system from the company that created the popular CorelDRAW image, is an analog switch-based video system which provides high quality full motion video within a local environment, and device video over home ISDN, WAN or satellite based connections. The product line includes a CorelVIDEO switch device, a video connect console, an interface card for PCs, and the CorelCAM video camera.

The CorelVIDEO system can be used as a two-way videophone, or for multi-point conferencing, as well as video mail, file transfer, telephone features, and reception of regular television signals.

Other Contenders

Distributors report some interest in other two-way video systems, such as the CompuLink videophone, and a Creative Labs videophone offering, but they also say that most of the business they see is driven by individual customers.

It seems there isn't enough margin or market to attract the interest of many specialized dealers or VARs for the less common PC videoconferencing devices.

The Future

It's apparent from talking to resellers and users that the videophone market has been helped considerably by the advent of inexpensive ISDN service in some parts of Canada, and the increasing power of inexpensive PCs.

The technology is getting easier to use, thanks to the heavy spend on R&D by companies like PictureTel, Intel and Corel. What both resellers and end users want is a videophone, however, is appliance-level simplicity, and image and sound quality that compares to cable TV. This is not available at present, but may be achievable over the next several years.

From a very small base, sales of videoconferencing and videophone products are growing steadily even given the current leanings. If the present trends continue, then over the next few years, Dilbert may actually have somebody to talk to on his videophone, and resellers may discover a major new opportunity in the personal computer market. **8805**

Product information on the Web:

<http://www.picturetel.com>
<http://www.vmd.com>
<http://www.intel.ca>
<http://www.corel.com>

Jeff Evans is a Toronto-based journalist specializing in high technology.

ISDN may solve bandwidth ills

by Jon Chow

Even the fastest modems over standard telephone wires are just not always enough for some of your clients, as today's Web sites less than video clips, large sound files, plus major download offerings. Moreover, the true promise of technologies such as videoconferencing will only be realized by higher-speed connections.

Hence, the appeal of Integrated Services Digital Network (ISDN) — a catch-all term used to describe a group of telephony communication standards used around the world that provide access to fully digital telephone communications networks.

ISDN is faster than normal telephone lines and cheaper than dedicated leased lines, and is used to carry voice and data (video, graphics, sound) digitally over telephone lines. Some applications for ISDN include videoconferencing, high-speed database access and image retrieval, telecommuting, telemedicine and other medical uses, distance learning, and remote control.

ISDN's digital signaling is faster than analog signaling, which has to be converted to digital for transmission through the digital network. It has fewer errors, retransmissions, or attempts to send lost data and has a clearer signal — which translates into higher data quality, more reliability, much lower call set-up time and this adds up to much faster communication speeds.

ISDN protocol standards are defined by the Telecommunications Standards Bureau (formerly the Consultative Committee for International Telegraphy & Telephony or CCITT), of the International Telecommunications Union or ITU. Proposed standards are known by the acronym ITU-T.

Switched-64 service uses a 64Kbps architecture of the telephone network for data and voice transport. European and Pacific Rim countries offer Switched-64 and it is becoming more common in North America. This service is available in two flavors, BRI (Basic Rate Interface) and PRI (Primary Rate Interface).

BRI is what most people refer to when they are talking about ISDN. BRI is the most common and affordable; it has two 64Kbps channels, called B or bearer channels, for

transporting data and one 16Kbps channel, called D or signaling data channels, for control. The two 64Kbps channels can be joined or reverse-multiplexed to give 128Kbps throughput. PRI access lines each have 23 64Kbps data B channels and a single on-off-hand signaling D channel (of 64Kbps).

An ISDN Basic Rate Interface (BRI) line can be split up into two channels to handle different types of data from different sources at the same time.

BRI gives the user two unique telephone numbers. The user could talk on one channel, and have the other send E-mail or fax or voice. ISDN handles any type of transmission signal — voice, data, video-quality sound, full motion video (animated or still images, graphics). Anything that can be converted to digital signals, ISDN can transmit at high speeds.

At 128Kbps ISDN BRI is more than four times as fast as a 28.8 modem. But even — even though the ISDN user may have fast access to the Net — actual speed depends on how busy the Web server is on the Web site being browsed — and the speed of connection of that server to the Internet.

One area where faster transmission speeds will be evident is when ISDN is deployed over a wide area network.

ISDN and Videoconferencing

Videoconferencing is one of the uses often mentioned for ISDN because of the large amounts of data sent. Currently, speaking, videoconferencing uses either one BRI line at 128 kbps or three BRI lines at 384 Kbps.

James Robertson of Adcom Inc., a Vancouver-based ISDN videoconferencing integrator, said there is no audio compression with faster ISDN access, but the faster ISDN provides a faster refresh rate for the video signal — which gives better motion handling, and a smoother image for those watching.

The speed needed depends on what the user wants to do and depending on what they want to spend. For example, a full T-1 connection provides 1.544Mbps for video. But if there's not going to be much movement going on, the faster connections may not be needed.

Some ISDN uses:

- ▲ Videoconferencing
- ▲ Fast Internet access
- ▲ Medical imaging
- ▲ Telemedicine
- ▲ Distance education

There are systems on the market which can dynamically allocate bandwidth according to the type of image quality required. If the subject is moving fast then it steps up the bandwidth for the video portion and when the subject is less dynamic, it steps down.

Onwell's S24th Edge Router, for example, allows the user to send a fax, talk and transmit and receive data all at the same time, automatically allocating bandwidth on the appropriate channel to do these tasks.

In the world of medicine, specialists may be physically some distance away from both patient and attending physician. By using ISDN lines, results from diagnostic procedures can be sent quickly and viewed by specialist and attending physician in widespread geographical locations.

In the publishing world, images for inclusion of printed materials or proofs must be sent quickly for approvals. By having some ISDN lines, images can be sent direct to the desktop and approved quickly.

In real estate, photos and documents can be sent to potential buyers who could be contractors away in the comfort of their office or home. Real estate agents and brokers can reach a market larger than the immediate area.

Distance learning can take place where the teacher is on one coast operating a computer on the other coast while students from around the country are learning. Large images, sound and data can be shared in almost real time.

ISDN-based remote control of equipment using measuring devices is being developed and implemented. For example — such systems are being used for temperature control of rooms and lab processes, livestock feeding, and dispensing products. □

Manufacturers talk out first DVD products

Getting a rush on the industry, Matsushita Electric Industrial Co. has announced its first digital video disc (DVD) players.

The company will start selling two DVD players and a TV with integrated DVD player later this year in Japan.

From Nov. 1, the company will sell the DVD-A300 and DVD-A300 players. The units will be capable of playing back pre-recorded DVD video discs, audio compact discs (CDs), and video CDs. The players will be priced at 79,800 yen (US\$737) and 98,000 yen (US\$903). Matsushita has set combined monthly production at 30,000 units.

The company says it plans to announce North America shipping dates at a later time.

Both the A300 and A300 machines can play DVD video, video CD, and audio CD discs. Outputs from the units include base level video, digital audio, S-video Y/C, and an RF output (internal present on the A300 model only). Both units include a headphone connector and a microphone connector is provided on the A300.

AST CFO gets replaced by Samsung exec

AST Research Inc. took another step closer to being a fully controlled subsidiary of the Korean giant Samsung. The company announced the resignation of senior vice-president and chief financial officer Joseph E. Norberg, and "temporarily" replaced him with long-time Samsung executive Woo Suk Yang.

This move comes just weeks after AST CFO Liu Derry was replaced by Young Soo Kim, a former vice president at Samsung Electronics.

With Woo Suk Yang replacing Norberg as all of AST's major executives are from Samsung. Kwang-Ho Kim, president and CEO of Samsung Electronics, was elected as chairman of the board of AST in June.

AST has been struggling for the last 18 months. Samsung had put over \$600 million in the company, and with losses continuing, will have to put up more before it is all through. Samsung now owns or has options for 49.9 per cent of AST's outstanding shares.

Norberg, 49, who served as CFO since May 1995, said he left AST to pursue other business interests.

AST says it is starting a recruitment search to fill the open CFO position, and Woo Suk Yang will only hold the position in the interim. He is already an AST director, and has served at various senior level positions within the Samsung.

Drives will be faster, bigger, cheaper

Disk drive manufacturer Seagate Technology says the increasing use of on-line and multi-media applications is pushing demand for more data storage.

Coupled with the demand for bigger and faster hard disc drives, Seagate is improving its product features. These include magnetoresistive (MR) drives, which shreds the disk from harmful magnetic fluctuations, and Precision Thin Filter Heads, which improve the disk's read and write capabilities.

Seagate predicts that in the market growth, costs will plummet.

"Worldwide the storage market has grown, with the density of the drive increasing by 50 per cent," said Tina Chan, Seagate's senior director of Asian sales. "And the cost per megabyte is reducing by 40 per cent every year."

Cisco claims to offer the first on-line Chinese-language customer support

Trying to strengthen its presence in the People's Republic of China (PRC), Cisco Systems, Inc. has unveiled the PRC's first Chinese-language World Wide Web customer support site.

The new Cisco Connection Online (CCO) site, based in Beijing, offers users in the PRC free access in their own language to the same information and services available to Cisco customers globally.

According to Cisco, the service uses an intuitive Chinese language user interface and database that Cisco says should resolve more than 75 per cent of all common network issues and problems experienced by PRC's Chinese customers.

Bob Fennell, a spokesperson for Cisco, said "Cisco is contacting the support site directly to Chinanet, the China's national Internet backbone. This will allow Cisco customers in China to eliminate the expense of toll charges typically incurred by PRC users when accessing Internet sites outside the country."

Cisco first entered the China networking market in 1994 with the opening of an office in Beijing. The company has subsequently opened offices in Shanghai, Guangzhou and Chengdu. Recently the company has worked on a new state-governmental outlook that will link all of the country's state enterprises and provincial capitals to the State Planning Commission.

In Cisco's own words, "The new network will be an important tool in the central planning and fine tuning of the economy."

Singapore's island-line customers begin Internet connectivity

Individual users of the Internet in Singapore may not be able to access the latest on-line e-mails from Playboy, but those at major corporations and large companies will find no restrictions to their World Wide Web surfing.

The Singapore Broadcasting Authority (SBA) has clarified its intentions and said those with leased line access to the Internet will be free of any regulations.

For the rest of Singapore, the new regulations require all Web browsing to be done through proxy servers — computers that act as the Internet service provider (ISP) and act as a go-between for Web surfing.

Under the system, users' computers connect with the ISP computer rather than directly with the Web server on a distant site. The proxy server will then return a copy of the pages, already stored in its cache, or contact the server and get an updated version of the page. Using a proxy server means it is possible to monitor all Web surfing and block access to certain sites deemed unsuitable by the SBA.

Businesses had objected to their Internet use running through a proxy server, both for privacy and, primarily, for reasons of speed. Proxy servers can sometimes result in a slower response.

PlayStation grosses 7.2 million units

More than 7.2 million units of Sony's PlayStation have now been sold worldwide.

Computer Entertainment Agency, a unit of Sony Corp., has delivered its PlayStation game console "the most successful first generation video game system."

The system went on sale a year ago in the United States and has sold two million units since that time. Software sales have reached "apparently" nine million units in the same period in the U.S. market, said the company, which is hoping to boost sales further with the Superhit launched "Crash Bandicoot" — a 3-D character-based platform game produced by Sony Computer Entertainment America under license from Universal Interactive Studios Inc.

PlayStation first went on sale in December 1994 in Japan and has since achieved sales of 3.8 million units. In Europe 1.6 million consoles have been shipped.

A product currently available in Japan called "Nai Yawara" will soon make its way to North America. It is a complete programming package that allows users to create their own PlayStation games. **AAA**



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Sony stays on DVD players

Sony Corp.'s decision to delay the launch of its DVD player until spring next year may not solely be due to market considerations. Industry sources, close to the DVD consortium, have suggested that technical problems may lie at the root of the decision.

Sony has announced it will launch DVD players in spring, 1997, while most other core members of the DVD consortium are planning launches by the end of the year.

"We think DVD is a very important product," said a Sony spokesperson who asked not to be identified by name. "We want to have studied the market carefully and we want to ensure a smooth market introduction for our hardware and software products."

However, several sources close to the DVD consortium have suggested privately that technical problems, and in particular supply of components, may be more to blame. When the Toshiba and Matsushita group joined the Sony and Philips group to announce a common DVD system, the majority of the technology was contributed by the former grouping. Sony and Philips had more to catch up on and more work to do.

"It may be due to the supply of components" and one source has explained that each company doesn't make every component in their own DVD players themselves. With all companies gearing up to launch, supply is short and demand is high, especially for the very specialized components that are needed in some parts of the DVD players.

Currently, the internal market, between DVD consortium members, is experiencing very high demand and there are supply shortages — for example, in the special lenses required by DVD players.

While the company is well-positioned as a



manufacturer and seller of notebook computers, Toshiba Computer Systems Division (CSD) is making major changes to launch a line of personal computers and servers.

Toshiba outlined a major operations reorganization to reach its goal as one of the top three PC makers by the year 2000.

Tom Scott, general manager of the division, commented on the need to change, saying, "Our model has changed. We've become more than the leading portable hardware manufacturer. We're evolving into a complete PC computing solutions provider offering customers a range of products and services."

The company's first desktop computer is named the Infina. Toshiba describes Infina as a "black, midnight grey mini-tower designed for any room in the house." Clearly made for the home computing market, the full multimedia line offers full-motion, full-screen video; telephone answering; an eight-speed CD-ROM drive; and a remote control for accessing telephone messages, television, FM radio and CDs through the computer.

The Infina line is priced from US\$1,699 to US\$2,799. **9002**

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The Internet Impact

Resellers take note. If it hasn't happened already, the 'Net WILL impact your business – for better or for worse.

by Paul Larus

The Internet is rapidly transforming the way people communicate and conduct business.

The driving force behind this transformation is the World Wide Web, which is slowly becoming the world wide way to shop. According to a December 1995 A.C. Nielsen survey, 6.5 million Canadians are on the Internet at home, work and school. And several hundred thousand Canadians have made on-line purchases.

Annual global sales via the Web have reached an estimated US\$500 million (about seven minutes worth of credit card transactions on any given day). Predictions are that they will reach US\$150 billion by the year 2000 and hit the US\$1 trillion by the year 2010, according to Jupiter Communications, a New York-based research firm.

While the Web has not yet had a great impact on computer channels, resellers, distributors and industry analysts agree it will soon. They also agree the Internet is a most effective one-to-one tool to add value to marketing and customer service.

One of the first Canadian computer stores to open for business online was Oxy's Interactive (<http://www.oxy.computer.com>). Built by Richardson H&I, Ont.-based Oxy's Computers Inc., the virtual store offers more than 80,000 products from 400 vendors, including everything from mouse pads to Alpha servers.

After a year on-line, Oxy's is upgrading the site, adding an Oracle database that will enable the company to supply information about product availability and allow shoppers to build their own computer by selecting from PC components.

While Oxy's Computers does more than \$100 million in annual sales, Web sales have been minimal, says Oxy's president Phil DeLeon. However, the site has allowed the high-end reseller to enter the PC market without incurring costs.

Shopping from home on a PC is "the coolest thing," says Bill McJannet, general manager, sales and service, IBM Personal Computer Co. Rather than waiting for TV home shopping channels to show the next product, consumers will be able to use the Internet to view multimedia and full motion video presentations whenever they feel the urge to shop.

It's no wonder a business survey conducted by the Cambridge, Mass.-based consulting firm, Arthur D. Little, found 30 per

cent of Internet surfers are uncomfortable about using credit cards on-line.

While Microsoft, IBM and Netscape have joined forces with Visa and MasterCard to create a secure electronic transfer (SET) system for on-line transactions, companies relying on-line often bypass security concerns by posting toll-free numbers and offering COD or cheque payment options.

Even when the Internet is deemed secure, many consumers will want to talk to sales staff before making a purchase. So as more resellers set up commercial Web sites, they will have to add or expand to behind-the-scenes departments to answer customer inquiries.

More than 50 per cent of the Oxy's Interactive orders come through a toll-free line, says DeLeon.

Brompton, Ont.-based Software Online Inc. (<http://www.softwareonline.com>) reserves orders by E-mail and faxes for hardware and software.

On representative calls, back customers who are reluctant to use E-mail to place credit card orders.

"Coming to the 'Net when I want to supplement other business methods" says Jim Deslaur, a partner at Software Online. "It was what the business was designed for. Using the Internet will allow us to build a big business, not a big headquarters."

On-line for two years, Software Online is profitable and sales are picking up.

The new retail reality the Internet is creating also includes expert opportunities. Software Online and Oxy's Interactive have

"There is still a place for resellers. The superstores didn't eliminate us, neither will the Web."

— Jay Patterson

cent of respondents ranked electronic marketing as a "top-priority" activity. In fact, performing customer transactions on real-time and completing pre-sales and post-sales activities were ranked highest by 10 per cent.

"Having an Internet presence is a good part of an overall marketing strategy," says Michael O'Neil, senior vice-president with International Data Corp. (Canada) Ltd.

An IDC study indicates the most effective Net applications are achieving name recognition and establishing and fortifying client relationships. Generating revenue is

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sold products to customers as far away as the UK, Australia, New Zealand, Italy, the Middle East and Russia.

As shopping on-line grows, Deschen and his fellow resellers will find themselves squeezed between suppliers selling software at discount prices and cyberstores doing break business at discount prices because they have limited staff and so no real estate overhead.

But Jay Patterson, vice-president, technology with North York, Ont.-based Advanced Computer Systems Ltd. (ACSL), feels there is no need to sell products in cyberspace to remain competitive.

"There is still a place for resellers," says Patterson. "The suppliers didn't eliminate us, neither will the Web."

However, Patterson is no Luddite. He says the Web is changing the way resellers do business because of the ease of Internet access offered by Windows 95 and overall lower access costs. And he believes resellers have to develop a Web strategy.

ACSL offers clients E-mail and FTP technical support and has set up a Web site (<http://www.acsl.com>) to better serve its customer base. At the ACSL site, customers can download software patches, drivers and other files.

Glen Ewell, vice-president of EMI Data Systems Ltd. in Guelph, Ont., concurs with Patterson's assessment that there is still room for traditional resellers. In fact, Ewell compares shopping on the Web to catalogue shopping. There's a place in the channels for mail order but "a substantial proportion of the population want to buy their first computer in person," he said.

Ewell says the Web is beginning to have an effect, albeit apparent, on software sales — especially the sale of software smaller than 10MB in size. "Beyond that software just takes too long to download."

He points out that Microsoft is experimenting with trial software downloaded via the United States through resellers with commercial Web sites. And IBM is testing the electronic distribution of soft-

ware over its Global Network — delivering applications for network computing to more than 700 cities and 20,000 customers in 94 countries.

EDC's O'Neil predicted that software from the major manufacturers and some of the niche market players "will avoid current discounts all together" within five years. Companies will bundle software on CD-ROM shipped with PCs, and niche software houses will turn to "network-based distribution or virtual storefronts."

While cyberstores may not have yet had a great dollar impact on resellers, the Internet is certainly providing them with easier access to information.

EMI's Web site (<http://www.emi.com>) provides resellers with 24-hour-a-day, seven-days-per-week access to information. Resellers can download spec sheets, marketing material and answers to frequently asked questions.

Resellers can also link to the Web sites of manufacturers where they can download current spec sheets. Add a company logo and prices and presto, instant up-to-date brochures.

Resellers can take product training on-line from home or the office rather than travelling to seminars on set days or times.

Navitel Canada Inc. offers technology training through IAT Online. "Our most in demand courses — Navitel System Administration and Microsoft Windows NT — are now available when and where resellers and their staff want them," says Glen MacLean, Navitel's national director, reseller services.

Although most industry players report that the Internet has not yet had a detrimental impact on sales, resellers should not buy their heads in the sand when it comes to direct-to-customer software and hardware distribution. Otherwise, they may come up for air one day only to find yet another opportunity has passed them by. **GGG**

Paul Lemo (plmo@short.com) works as a Toronto-based freelance writer specializing in high technology and business reporting.



Web may be selling opportunity

by Sam Efrington

It is no surprise that many of the major distributors have slick web sites, although there are some noticeable differences, and a range of services — on-line pricing, hot products lists, and product information. Some are still under construction.

Check out these sources of information:

Mercel Canada Inc.

(<http://www.mercel.ca>)

Ingram Micro Inc. (Canada)

(<http://www.ingram.com/>)

Globele

(<http://www.globele.com>)

Tech Data Corp.

(<http://www.techdata.com>)

EMI Data Systems Ltd.

(<http://www.emi.ca/>)

Truger Technologies Inc.

(<http://www.truger.ca/>)

Like many organizations, large wholesalers are moving towards selling standard computer components via the World Wide Web.

In many ways, this business would seem an ideal use of Internet technology because computer parts tend to be commodities and purchase decisions are based on price, availability and credit terms, all of which can be easily automated to produce custom real-time quotes.

By allowing customers to, in effect, enter their own orders into the system, wholesalers can reduce labor costs and provide more responsive service.

Some VARS such as Vancouver's Frontier Computer (<http://www.frontier.com>) have developed quite elaborate on-line systems allowing customers to build custom configurations and run what-if scenarios to see what effect they have on the total price.

Discount Datacom Inc. (<http://www.discountdata.com>) in the U.S. has a number of common desktop products available through their web site. Their site is well laid out and customers can look at product spec sheets and actually enter an order on line, which is then confirmed via a telephone call from the company.

If you are considering providing information about your products through the Web, the complexity involved in doing so grows as your site becomes more interactive.

For a minimal cost you can provide the following information: contact telephone numbers, credit applications, a listing of products for sale and information about product specials and promotions.

While providing product information, including SKUs and specs, is relatively straightforward, pricing is the most difficult part of putting any business on-line.

It is easy enough to display list prices, but traditionally a sales rep promptly prints a product based on the quantity ordered, the customer's relationship with the company, the current inventory situation and a knowledge of future industry developments — for example, knowing that the requested product will soon be obsolete.

These factors can be difficult to quantify and an automated system should provide customers with a price which takes into account all of these factors.

Despite the difficulties involved in building complex pricing models, it is possible to do so and it is not a bad exercise to undertake simply to understand how your sales steps are currently using their discretionary pricing power.

Having a real-time interface between your internal inventory system and your Web site is useful because customers can see what is currently in stock.

And where? If you are considering this, however, or then you should have a security consultant to review the final design and make sure that an attack on your Web server doesn't jeopardize your internal accounting systems. (Obviously if you are running a Web server and connecting to the Internet you need to ensure that your site has a good firewall in place to guard against hackers.)

However, some clients will always prefer to deal with a sales rep rather than ordering electronically because they believe that they can negotiate a better deal from a person than they would get from the Web server.

For this reason it may be necessary to offer better prices to your customers who deal directly through the Web to encourage them to

visit (which shouldn't be hard since there is no need to pay commissions to sales reps for products purchased through the Web).

As in all electronic commerce, there is a clear need to authenticate your buyers in order to provide "non-repudiation" and protect yourself from fraud.

You can easily set up a system whereby potential customers can build systems or query inventory, but to actually allow on-line order entry you must be sure that the customer cannot later claim that they didn't order the product. One way to achieve this is to have the system create an order number and then have a sales rep call the client via the phone to confirm the order.

While effective, this method seems to miss the point of having an automatic ordering system.

Another method is to assign a one-time and password to users who want to actually purchase through the Web and the server can then display different pricing based on which user is actually accessing the information.

This approach is not problem-free since the security of the site may depend on how well your user names safeguard their passwords. (Don't forget that hackers specialize in piecing passwords and the ability to order easily available computer parts will be a real temptation to cracks.)

A more secure solution is to provide customers with token cards which are used along with a password to gain access to a site. With

each costing anywhere from \$15 a year and up this is not as cheap as simple password protection but it is more secure.

Increasingly, your customers are going to expect that they can access through the Web all of the information that they currently get via the telephone and eventually place orders too.

There is a learning curve associated with electronic commerce and the sooner you start to develop an Internet strategy the more competitive your business will be. **□**

Sam Efrington is a consultant who specializes in wide area networking and network servers. He can be reached at (804) 473-2374 or E-mail: sear@tdi.ca

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Pentium Pro Systems

Introducing the Power Machine

by Chris Fisher, Steve Wolinda and Tim Bingham-Walker

It is not necessarily the PC your customers need, nor even the one they can afford. But given the weight of their performance—a Pentium Pro is very much what your customers really want.

Performance is something the Pentium Pro has in spades

We've run a host of 32-bit business applications under Windows NT and Windows 95. The results, even the fastest vanilla Pentium, can't hold a candle to the performance of the Pentium Pro-based machines.

System vendors are reporting a healthy increase in volumes as they begin to ship systems with Microsoft's new rendition of Windows NT. Judging from feedback, media reports and market analysis, Windows NT 4.0 is going to see a high adoption rate. Racing hand-in-hand with the adoption of this new operating system, we can

expect to see a jump in the volumes of Pentium Pro processor shipments. Intel is counting on Microsoft's power OS to bring its processor from niche markets into the mainstream.

What's the Performance Difference Between Windows NT 4.0 and Windows NT 3.51?

Microsoft's official claim is as follows: "Preliminary tests show an average increase of 18 and 21 per cent in the performance of today's 33-bit desktop business applications when running Windows NT 4.0 on Pentium Pro and Pentium processor-based computer systems, respectively, as compared with the identical applications and systems running on Windows NT 3.51."

Our tests tell a slightly different story. We ran BAPCo's Sysmark32 on one of the machines from Comex using the release version of Windows NT 4.0 and Windows NT 3.51. The overall score (or Sysmark) for the system running under NT 4.0 was 184, whereas under NT 3.51 the score was 184. This is a significant increase to be sure, but much closer to a 10 per cent increase as opposed to Microsoft's claim of 18 to 21 per cent, which is probably more closely tied to specific functions such as printing, rather than general application performance.



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How does Windows 95 Perform on a Pentium Pro?

Windows 95 uses a significant amount of 16-bit code. Microsoft buyers all only have criticized the operating system greatly for this. However, the use of this code, a lot of which is found in the graphics subsystems, is for the most part, to maintain a good level of compatibility with existing 16-bit software. Certainly, NT will run a lot of 16-bit applications, but the performance hit is quite large.

There would have been far more critics had Microsoft released Windows 95 without the ability to run popular games and likely a much lower sales volume. To test the difference in performance between a Pentium processor running Windows 95 and Windows NT, we benchmarked a machine from Sima using both operating systems. The difference between the processor running Windows NT 4.0 beta 2 and Windows 95 turns out to be quite slim, with NT having the edge by about three per cent.

In other words, there is still enough 32-bit code in Windows 95 to take advantage of the specialized design of the Pentium Pro. Naturally, you need to take into account that the test uses 32-bit applications. Note that we also tested for speed differences between the beta 2 version and the shipping version of NT as operating systems tend to get quicker from beta to release as the code is fine-tuned.

The difference was surprisingly insignificant with NT 4.0 beta 2 scoring 183 and NT 4.0 scoring 184 on the single-processor machine from Sima.

We used high-end system configurations, registering vendors to provide us a bare minimum Pentium 200MHz system, with 32MB of RAM. We also welcomed Pentium Pro-based systems with whatever exotic peripherals the vendor had to offer. We got what we asked for straight, from base-configured Pentium 200s right through to a dual-processor Pentium Pro 300 with 128MB of RAM.

Adding to the complexity of the situation, the systems were benchmarked using a variety of different versions of Windows NT and even Windows 95. This makes it difficult to even tie the machines competitively, but with a general idea of how the performance differs across different platforms, it is still possible to get a handle on the relative performance offered by the different machines.

So without further ado, here are the dream machines.



AST Canada

Reseller authorization

A simple registration process

Street price:

(6183) \$3,440

(6200) \$4,300

Marketing support:

- Independent reseller network
- Monthly mailing list
- 1-800 product support
- Feedback
- Gold team for resellers who achieve targets
- Full logo authorization
- Maintenance relationship with resellers:
 - Authorized service centre for those who achieve \$50,000 per month
 - Regional representation

Volume discounts:

Exceptional cases only

Demo unit availability and restrictions:

One is available per location, with 90 days stock, and 90 per cent off

Additional channel support:

- Three reseller account managers (two central and one western)
- 17 corporate representatives for corporate accounts
- Nine system engineers for technical support
- Toll-free dealer support
- Customized literature available for purchase and through co-op

AST's view of the Pentium Pro in the market-place:

The company says, "The Pentium Pro is the next generation computer and it is available today. The integration between the Intel Pentium Pro technology and Microsoft Windows NT gives customers a powerful combination of speed and ease-of-use. The AST Bizarro MS-T Pro incorporates increased functionality, ease of use and pure power, to ensure that we are the first to market with rock-solid high-end products."

Machine's strengths:

AST says, "The AST Canadian Center Software suite offers impressive manageability and the tools customers need. Performance

is boosted 64 per cent, for a price increase of under to 80 per cent. Included are: AST Bizarro Access (Internet/Internet Software suite), a PCI-based 64-bit Matrox MGA Millennium graphics adapter with 2MB VRAM, the Intel 440BX PCI set, 16MB EDO RAM (6400), 32MB EDO RAM (6200), and the BX EIDE Mode 4 CDR-ROM."

Editor's Notes:

A solid machine with everything you need to be up and running without the hassles. You get a fire-wired hard drive, great video card, and the technical support and backing by one of the industry's giants.



Compucon

Reseller authorization

Applying resellers can be located near to an existing authorized reseller—at the discretion of Compucon

Suggested retail price:

\$4,700

Street price

\$4,400

Marketing support:

- Cost sharing for dealer exhibitions
- The company will provide marketing materials
- End user leads are referred to the nearest reseller

Maintenance relationship with resellers:

- Resellers are considered the front end of end-user support, and are encouraged to offer their own value-added support such as service support, networking installation, and software installation.

- First warranty is by manufacturer at the depot

Volume discounts:

One per cent less for a quantity of more than 10

Demo unit availability/restrictions:

No demo units

Compucon's view of the Pentium Pro in the market-place:

According to the company, "Compucon CIP/Net's Pentium Pro workstations are designed to meet professional needs such as desktop publishing, 3-D animation, and CAD

Pentium Pro Computers Test Results



	AST Bravo MS-T	A-Open	Compaq	Compaq Winpac200-DWE	Compaq Super Server	Express Micro
Processor	Pentium Pro 200	Pentium Pro 200	Pentium Pro 200	Pentium Pro 200	Dual P4Pro 200	Pentium Pro 200
Chipset	Intel 440FX	Intel 450FX	Intel 440FX	Intel 440FX	Intel 440FX	Intel 450FX
Cache size	256K	256K	256K	256K	256K	256K
RAM	32MB EDO	32MB EDO	32MB EDO	32MB EDO	128MB	32MB EDO
Video Card	Matrox Millennium	S3 Trio 64	Matrox Millennium	Diamond Stealth	Winfast 3D L2500	Matrox Millennium
Video Memory	2MB WRAM	2MB EDO	4MB WRAM	2MB EDO	16MB	4MB WRAM
Monitor	None	None	None	None	None	None
Sound Card	Crystal 16-bit	Acer 822	None	None	None	SB AWE 32
Hard Drive	Western Digital 2.3GB EIDE	Western Digital 2.5GB EIDE	Seagate Barracuda 4.2GB SCSI	Western Digital 1.6GB EIDE	Seagate 2.1GB SCSI	Quantum 4.3GB SCSI
SCSI Card	None	None	Adaptec 2940UW	None	Adaptec 2940UW	Wide caching w/MB EDO
CD-ROM Drive	8x	Acer 8x	Panasonic 8x	Toshiba 8x	Toshiba 8x	Acer 10x
System BIOS	AMI	Award	Award	AMI	AMI	Award
Plug & Play Support	Yes	Yes	Yes	Yes	Yes	Yes
Operating System	Windows NT 3.51	Windows NT 3.51	Windows NT 4.0	Windows NT 4.0	Windows NT 4.0	Windows NT 3.51
Extras			PCI10BaseT Ethernet			Speakers Creative Labs SB 6K
Windows Benchmarks						
Desktop Publishing	139	179	160	211	265	273
Desktop Graphics	998	959	915	994	997	279
Desktop Presentation	205	134	209	130	221	236
Word Processing	126	134	166	183	237	202
Spreadsheet	139	137	175	189	261	186
Database	125	156	136	174	257	231
Synmark 32	150	142	189	184	269	214
Contact	(905) 507-3278	(905) 479-8336	(604) 279-9699	(504) 273-8086	(604) 273-8086	(905) 479-1443
Internet contact	www.ast.com	www.aopen.com	www.compaq.com	www.compaq.com	www.compaq.com	
Suggested Retail Price	\$4,300	\$3,465	\$4,795	\$3,200	\$8,900	\$5,599
Street Price	N/A	N/A	\$4,435	N/A	N/A	N/A
Reseller Price	N/A	N/A	N/A	N/A	N/A	N/A
Warranty	3 years	2 years	3 years	3 years	3 years	5 years

* Operating system not included in system price.

designers who demand reliability and performance. They are designed for maximum flexibility on optional upgrades with Creative Labs AWE32, SCSI storage devices such as CD-Recorder (That's why the Compact Station is built with a 4GB SCSI for better performance when used with CD Recorder).

Machine's strengths:

Compaq says, "Systems are designed to meet industrial server standards (running 24 hours non-stop). All systems are designed and built for multitasking and communication by taking EMI (electro-magnetic interference) into account. Reliability, stability, compatibility (with major operating systems and applications), connectivity and performance are key strengths. All machines come with well-documented technical information."

Editor's Note:

At a street price of just under \$4,500, Compaq's system is an easy choice. All systems come with an impressive amount of system documentation, neatly laid out and well-generated for easy reference. It includes a loaded system with all the trimmings, including Microsoft's latest version of NT 4.0, not to mention a huge SCSI hard drive by Seagate. For your immediate networking needs, the system comes ready with a PC110Bus-T Ethernet adapter.



Compaq Super Server

Reseller authorization:

Dealer authorization is based on geographical territories.

Suggested retail price:

\$3,900

Marketing support:

- Literature and marketing materials
- Co-op funds for marketing and training
- Technical and 1-800 telephone support
- Product training seminars

Volume discounts:

None

Demo unit availability and restrictions:

Demo units are limited to three models.

Additional channel support:

Additional channel support includes joint sales and support and a scheduled road show.

Compaq's view of the Pentium Pro in the market-place:

According to the company, "By the end of 1996 the Pentium Pro will become the mainstream desktop choice due to the shipping of NT 4.0 and the drop in price. In the market, we consider our Pentium Pro as a departmental Web server and a high-end workstation."

Machine's strengths:

Compaq says, "We work closely with our vendors to offer advanced technology which will be considered the 'standard.' This will ensure the upgradability of the product and that service will be available at the point to center."

Editor's Note:

If you're looking for server power this dual processing Pentium Pro 200 is a definite action grabber. With 128MB of RAM, a fast Seagate SCSI HDD and a \$2,400 video card with 16MB on board, you've got yourself the makings of a real performer. The floppy video card certainly helped this system score high on our benchmark tests, but if you're looking at using this machine for single server applications, you'd be wise to consider downgrading to something less extravagant.

Compaq is well known for submitting solid machines into our Lab tests, and this unit proved was no exception. (The Win95-DSE system is fast, complete, and affordable. The system is comprised of quality components such as a Diamond Stealth video card, a Western Digital hard drive, a 4x CD-ROM from Rohba, and NT v4.0, all for a suggested retail price of \$3,200.)



Express Micro

Reseller authorization:

Resellers must show "commitment" to the product line, achieve sales targets and show adequate service and support capabilities.

Suggested retail price:

\$3,599

Marketing support:

- Co-op advertising

• Lead generation:

• Road shows

• Posters, brochures and sales materials are supplied

Maintenance relationship with resellers:

Resellers with authorized service contracts can perform maintenance and repair.

Volume discounts:

On a case-by-case basis

Demo unit availability and restrictions:

One unit per location. The unit must be kept in showroom at least 90 days.

Additional channel support:

- 1-800 tech support line

• Web page:

Express Micro's view of the Pentium Pro in the market-place:

The company says, "Pentium Pro is positioned as an MS Windows NT machine and currently has a limited role in the product line. However, as MS Windows NT 4.0 becomes widely available, this role is going to expand."

Machine's strengths:

Express Micro says, "Quality components ensure compatibility with industry standards. Strict quality control procedures ensure minimal problems in the field. Various regulatory approvals such as CSA, FCC, CE, and Novell are met, and the systems are tested and approved on MS Win NT 4.0 hardware compatibility list."

Editor's Note:

One of the fastest scoring machines in this roundup, the system from Express Micro leaves little to be desired. Complete with everything from a 4 GB SCSI drive to a caching controller with 6MB on board, and a 33.6K fax modem, this system is a definite winner. Also the only system in this survey to sport a built-in 15x CD-ROM.

Hewlett-Packard's HP NetServer LX Pro Dual Processor

Reseller authorization:

All reseller authorization is done through distributors, logons and Manual.

Suggested retail price:

\$26,311

Street price:

\$24,211

Marketing support:

Vendors, including advertising, public relations and seminars.

Maintenance relationship with resellers:

Maintenance is through resellers or HP directly.

Volume discounts:

Vendors

Demo unit availability:

Demo units are available

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Hewlett-Packard's view of the Pentium Pro in the market-place:

HP says: The Pentium Pro is the leading processor today, and will become the standard processor for servers in this class.

Machine's strengths:

HP cites: TPC-C benchmarks, top SSSAP benchmark ratings, and top Linpack benchmark ratings.

Editor's Notes:

HP's Net Server LX Pro is just one model in the company's available lineup of server machines. Loaded with 128MB or RAM, this dual processing Pentium Pro 166 is rock solid. Among its many fine points are the hot-swappable drives in a RAID configuration for your data's well-being, and the peace of mind that comes with HP's customer support program.



Oct. 98

HP Vectra LX

Reseller authorization:

All reseller authorization is done through distributors Ingram and Mervel.

Suggested retail price:

\$4,154.

Marketing support:

Various, including advertising, public relations and seminars.

Maintenance relationship with resellers:

Maintenance is provided through resellers, or HP directly.

Volume discounts:

Various.

Demo unit availability:

Demos are available.

Editor's Notes & Editor's Choice:

A lot of speed and power are packed into a sleek-looking desktop case. This machine from HP was the second fastest in our roundup in the single processor category. Partly responsible for its high score was the use of a Matrox Millennium video card and a Quantum HD — an excellent combination of quality components. Note that the price of \$3,979 is with a 32MB configuration; our evaluation model was equipped with 64MB in total.



Myntx

Reseller authorization:

Resellers must be in an office or in a storefront with at least one technical support technician.

Suggested retail price:

\$3,995.

Street price:

\$3,615.

Reseller price:

\$3,250.

Marketing support:

- Product brochures
- End-user leads are passed on to resellers
- Co-advertising with selected dealers
- Web page support

Maintenance relationship with resellers:

Dealer support is offered through Myntx Depot.

Volume discounts:

Quantities of 10 — two per cent, 50 — four per cent, and 100 — six per cent.

Demo unit availability:

Available to volume customers.

Additional channel support:

- Bilingual documentation
- Optional on-site service for all systems

Myntx's view of the Pentium Pro in the market-place:

The company says: "We believe the Pentium Pro will take off early next year as the market demands high performance systems. There will be a tremendous growth in two sectors: Corporate servers/workstations, and home multimedia applications."

"For the corporate sector NE and the newly released Novell GroupWise will fully utilize the potential of the Pentium Pro processor, and give a good boost to productivity in the corporate workplace."

Machine's strengths:

Myntx says: "We are an ISO 9002-certified company with high-quality standards. We have our own Novell-certified lab to test and certify all the systems we sell. All of our systems are Win95, NT, and CSA certified."

Editor's Notes:

This system from Myntx was complete as far as its configuration, but did not perform as well as we would've hoped. It's interesting to note that Myntx, as with several other vendors, opted to use a Matrox Millennium as their video card. This seems to be a developing trend among system builders, especially when they realize that the video cards tend to help out the overall scores of the system.



QA Comp

Reseller authorization:

Yes, with a minimum of two to three dealers per city. The weight is on the dealer to provide service and support.

Suggested retail price:

\$5,968.

Street price:

\$5,968.

Reseller price:

\$5,670.

Marketing support:

- Nation-wide advertising
- Ready-to-use marketing materials

Maintenance relationship with resellers:

Free parts cross ship for service-authorized resellers.

Volume discounts:

After 100 units — a two per cent incentive on further purchases.

Demo unit availability:

Available, but not advised, says QA Comp, due to the rapidly changing market.

Additional channel support:

- A CNE and MCP are available for free consultation
- E-mail support

QA Comp's view of the Pentium Pro in the market-place:

The company says: "Intel released the Pentium pro a few months ago. Yes, demand and supply are not picking up. In the last few months we sold Pentium Pro mostly as high-end workstations. We do not forecast this changing soon."

Machine's strengths

GA Corp says: "We are a technically oriented company with a strict quality control system, and we use quality parts."

Editors' Notes

For a single processor machine, GA's Pentium Pro didn't waste any time flying through our benchmark suite. A complete system, including a 1 GB RAM memory bus drive for your backup needs, a speedy 28 MBps format drive from USK, a 2 GB SCSI drive from Seagate and the ever popular Matrix Millennium with 4MB of VRAM on board packed from top to bottom, with a competitive price.

**STD****Editors' Notes**

The only system in our survey to come in under \$5,000. Performance was near average, and the system is loaded with standard parts. It's interesting to note that STD included a 4x SCSI CD-ROM rather than the usual 8x, as seen from many other vendors.

**Ultinet****Retailer authorization**

The dealer is required to fax appropriate retailer certification.

Suggested retail price:

\$3,522

Street price:

\$3,268

Retailer price

\$3,105

Marketing support

End-user leads are provided.

Volume discounts

Volume discounts are provided, based on items and quantity ordered.

Demo use availability and restrictions

Demo units are available for dealers who have shown past performance in sales.

Additional channel support

• Faxback;

• Internet

A toll-free hotline

• Tech support via fax

Machine's strengths

Ultinet says: "We use the latest Pentium 443BX designed chip set specifically designed to make the most of the Pentium Pro's dual pipeline capability, support for EDO and ECC memory and PCI 2.1 specs for current PCI board streaming. We custom-configure PCs to the dealer's or their users' specifications."

Various system configurations are tested to optimize performance while at the same time

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making sure that no compatibility issues are encountered while using all the latest high-performance peripheral device, such as cache controllers, high-speed video cards, and SCSI controllers.

Inventory is maintained for all current products, by ensuring quick service or parts replacement. The dealer is also allowed to perform their own board swap for systems, once again resulting in faster service and prevention of possible damage to the computer while being shipped back and forth.

Editors' Notes:

Ultaraet is known for packing a lot of value into a lower-cost case, and this month was no exception. It was one of two systems in this survey to be loaded with 64MB of RAM. All just over \$3,200 street price, the system is well-priced and configured. It's also worth mentioning that this price includes the Windows NT operating system, something which is usually an extra cost with Ultaraet systems.

Editors' Choice

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HARDWARE

CompuLink's Advantage

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to get the best video card for the

best price. The video card is the

most important part of the system

and it is the only part that can be

upgraded without changing the

motherboard. The video card is the

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Oct. 96

Comex Super Server

HP Vectra XA

STD CompuPartner

Please take note that the machines in the table were benchmarked under differing versions of Microsoft's new operating system. For those machines that ran under Windows NT 3.51, you will want to increase the score by approximately 10 per cent to get a better idea of the relative performances of the machines.

OUR FAVORITES

We liked several systems — the Comex Super Server is extremely desirable. With the help of tons of RAM, and a fast and expensive (\$2,800) video card, this machine took top spot in performance. Machines from QA, Express Micro and HP also ranked high in this category.

(We should note that the fastest machine we've seen on our business application-based benchmark can't be had through the reseller channel, as it came from Dell Canada.)

PRICE KUDOS

STD managed to sneak in a base-configured system that manages to hit a price point of less than \$2,000, and although several other vendors could undoubtedly argue that they could have managed the same thing, no one did. The STD offers adequate Pro performance at near-standard Pentium desktop pricing.

BUSINESS PICK

For an all-round business computer, we go for the HP Vectra XA. Its design and accompanying bundle are tell-tale that the machine was built with the network manager in mind. Performance was above par. The only problem we have with the Vectra XA is the amount of money that HP wants for a 32MB memory upgrade on the machine — more than \$1,800.

When we first received this information, we were sure it was a mistake, but multiple sources tell us that it is not.

Our advice: if you're interested in carrying this machine, buy it from HP and source your memory upgrades elsewhere. **DXC**

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New Brunswick gets break on PC purchases

The province of New Brunswick, which has shown a strong interest in encouraging computer use and attracting the high-technology industry, has now announced a sales-tax rebate aimed at getting its citizens to buy personal computers.

Two private companies have teamed up with free Internet access and a special financing deal for PC purchases. The province said that, until the end of this year, it will give a rebate of as much as \$250 in provincial sales tax on the purchase of any personal computer capable of connecting to the Internet. Sales tax in New Brunswick is 11 per cent of purchase price, so any computer that costs more than about \$2,270 and is Internet capable would qualify for the full rebate.



Spokesperson Patrick Lacroix, of the provincial Ministry of Economic Development and Tourism said the province is defining Internet capability to mean a 486 or better processor and a modem.

New Brunswick Telephone, a private company that provides local and long-distance telephone service throughout the province is also offering new customers three months of free, unlimited Internet access as part of the province's Get Connected program.

The Royal Bank of Canada is offering financing at one point above the prime rate to those who buy qualifying computers through New Brunswick Telephone's NBNet retail program.

However, any Internet-capable computer, no matter who sells it, qualifies for

the sales-tax rebate, Lacroix said.

The government has also arranged for community colleges throughout the province to offer free seminars on buying personal computers.

New Brunswick, under the present government of Premier Jack McInnes's Liberal party, has viewed information technology and telecommunications as a key to economic development. The province was among the first to make Internet access universally available, and has worked to attracting communications-oriented operations such as telephone call centres. According to the provincial government, the Get Connected program is meant to give most New Brunswickers a basic knowledge of computers.

Lacroix said 32 per cent of homes in the province have personal computers now, and the government is hoping to raise that figure by four per cent.

For more about Get Connected, see <http://www.gov.nb.ca>

Compaq authorizes MicroAge outlets for service

Compaq Canada Inc. has authorized its first System Service Provider (SSP) in Southwestern Ontario — MicroAge outlets in Kitchener, London and Hamilton.

Qualified SSP channel partners, like MicroAge Kitchener, MicroAge London and MicroAge Hamilton, will be able to offer "a total service solution" to customers, according to Compaq.

The company says authorized Compaq SSP representatives are experienced at providing guaranteed service-level agreements to corporate customers. Moreover, they must be proficient at break-fix service as well as the design, installation, integration, optimization and management of networked application platforms.

In other news, Compaq, the company is offering promotional price reductions until year-end on selected Netelligent network interface cards and repeaters.

For example, a Netelligent 10/100 TX PCI UTP Controller that previously had a suggested list price of \$215 is now priced at \$179, and a Netelligent 1108 (eight-port) 100Base-T Unmanaged Repeater has been reduced from \$1,413 to \$1,161.

JetForm buys Delrina's forms software

JetForm Corp. has bought the electronic forms software business of Symantec Corp.'s Delrina Group. JetForm will pay about US\$100 million over four years in cash or stock. Delrina, formerly an independent company based in Toronto, was sold to Symantec of Cupertino, Calif., last year for about US\$445 million. Besides the forms software it is now turning over to JetForm, the group makes data and voice communications and fax software for personal computers.

JetForm said the firms and workflow products it is buying from Delrina will complement its own electronic forms products and workflow automation software, including JetForm Design, JetForm Filter, JetForm FilterFlow, JetForm Central, and JetForm Workflow.

The deal also gives JetForm access to all current Symantec electronic forms and workflow customers, company officials said.

Along with the products, JetForm will take on about 65 former employees of Symantec's Delrina Group, more than half of whom are Toronto-based research and development staff. Those people are expected to stay in Toronto at least for the time being, said a spokeswoman for JetForm.

Cord plans to develop personal digital assistant

Taking a supporting leap into hardware — Cord Corp. has announced it will enter the personal digital assistant market, planning to ship product by mid-1997.

According to the company, the product will include standard personal information management capabilities for scheduling, contact management and voice annotation. It will also let users browse the World Wide Web, prepare notes using either a keyboard or handwriting recognition, and send and receive E-mail.

All the device's applications, including the Web browser, will be written in Sun Microsystems's Java programming language and will allow users to run Java applets downloaded from the Internet. The open-ended operating system — which will allow third-party developers to write their own programs for the system — will be embedded as a kernel into the PDA with the

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Java Virtual Machine running on top of that kernel).

"We are cutting new ground with this product in that it will be a complete software solution," said Michael Copeland, president and chief executive officer of Coriol Corp. "With an open-standard operating system, access to the Internet, and the ability to fax and E-mail messages or synchronize data through a regular telephone line, our PDA will indeed be unique in the market-place."

This pocket device will enable the user to choose between either a monochrome or a color LCD screen and will run on a high-performance RISC processor. It will also come with re-chargable batteries, a built-in modem for use with either a standard or cellular telephone, a wall-mount adapter, and a keyboard docking station for synchronizing data and re-charging batteries. Users will hold the PDA in a portrait position to access the PIM functions and in a landscape position for Internet browsing and E-mailing. Approximately three by four inches in size, Coriol's PDA will retail for less than US\$500.

IBM Canada announces storage division

Boosting its attraction to the business of storage, IBM Canada Ltd., of Markham, Ont., has formed a Storage Systems Division. Like a similar unit in the United States, the new unit will be responsible for the sales and marketing of disk drives, tape drives, controllers, storage management software and other storage-related products.

Ross Rose, who was formerly manager of market development for Systems/390 and storage products at IBM's Canadian subsidiary, becomes general manager of the new unit, which is being split off from IBM Canada's Systems/390 division.



Beta launches Cyrix-based PC line

Markham, Ont.-based Beta International Corp. has announced its Cyrix 6X86 line of systems under the name — Beta Liberty.

The company is shipping the Cyrix 6X86 P135+, P130+ and P166+ with plans for P300+ shortly. According to Beta, the products are similar to the Beta-branded Pentium Summit line — except with the Cyrix processor.

The Beta Liberty will feature desktop, minitower, midtower and fulltower configurations, ISA and PCI bus, 16MB RAM standard, with expandability, and built-in enhanced IDE DO.

Microsoft, iStar team on Internet access

Cable-based Internet access provider — iStar Internet Inc., is buying for a further boost from a deal with Microsoft Canada Inc. of Mississauga, Ont. Microsoft has a new Internet Connection Wizard in its Windows 95 operating system that, working with the Internet Explorer Version 3.0 browser, will hook customers up to the Internet using iStar.

When an Internet Explorer user in Canada opens the wizard, it will prompt for a telephone number with area code.

As long as iStar offers local access to the customer's calling area, the wizard will then present a sign-up form for access to the net through iStar.

For its part, iStar has selected Internet Explorer 3.0 as its default browser, and will offer the software to all of its customers, officials said.

CANARIE invites applications for funding

The Canadian Network for the Advancement of Research, Industry, and Education (CANARIE) has announced it is accepting applications for shared funding for research and development projects meant to create new software products and applications. In comparison with the federal government, CANARIE will hand out about \$45 million in support for such projects this year.

The shared-funding program has operated since 1993 and has backed more than 100 projects so far, officials said. Preliminary applications must be received by Oct. 22, and applicants selected in the first phase will be asked to prepare full business plans for the second phase of the selection process. CANARIE is on the Web at <http://www.canarie.ca>.

Cognos hopes intranets will boost business intelligence

Cognos Inc. hopes to capitalize on the growing use of intranets by beefing up its business intelligence software products with features that let the software interact with intranets. The changes will take place over the coming year, according to Rob Rose, director of product marketing at Cognos.

Rose said Cognos plans to add features to its Impromptu and PowerPlay packages to let them work natively in an intranet environment. Both packages provide data access and analysis capabilities. Rose said an intranet — a closed corporate network using Internet protocols — can serve as "a giant data base environment" for the packages. The enhancements will include support for hypertext markup language (HTML), which is the standard on which World Wide Web documents are built.

Cognos also plans to provide server versions of PowerPlay and Impromptu that will run on a corporate Web server or on a second machine attached to the Web server, and will allow users to use the Cognos software's capabilities from an ordinary Web browser running on any PC attached to the intranet. Rose said this will mean that intranet users will be able to extract data as they need it rather than waiting for scheduled reports.

Also, Rose said, Cognos plans to add security and access control features to make its software suitable for intranet deployment.

All of the additions will be made over the next 12 months, Rose said.

The first steps — modifications to the existing versions of PowerPlay and Impromptu to work with intranets — are due shortly. The creation of server versions allowing for browser access will take the longest, with beta testing of these products due in the spring, Rose added. **CSN**

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Windows NT 4.0 — Should it be part of your company's product line?

by Alan Zimmerman



Answers to some common questions

Will Windows NT 4.0 come to replace Windows 95 on the desktop?

No. Windows 95 will remain popular, and will outlast NT for the next few years. It remains a better choice for most home and small business systems, and for virtually all portable computers. Expect to have to provide both Windows 95 and NT 4.0 as options. In fact, some users will prefer to stick with tried-and-true Windows 3.1 — 20 million units of that will be sold in 1996, according to research firm Dataquest Inc.

What systems should come standard with NT 4.0?

Expect your standard NT 4.0 system to be a high-end Pentium, or even better, a Pentium-Pro, with 32MB of RAM and a 2GB hard drive. Include a CD-ROM and 16-bit sound card, but make sure that both (along with your video card) have NT 4.0 drivers (older NT drivers don't count). But be sure to include DOS and Windows 3.1 drivers as well, with all systems, allowing users the option to boot to DOS if needed.

Who will be the target customer for NT 4.0?

NT 4.0 is being targeted at a business users, connected to a local area network. (You might want to make an NE-2000-compatible Ethernet card standard on all machines.) As well, expect some sales to so-called power users at home or in small businesses, the buyers who want to be on the cutting-edge. Or anyone wanting to purchase a Pentium-Pro and make full use of its power.



Windows NT will be making its way through the OEM channels, starting to be installed on the computers you produce, distribute, and sell.

Where does NT fit in Microsoft's plans?

More importantly, where should it fit in your plans and product line?

A Look to the Past

Microsoft has a long history of taking several generations of a product before finally getting it right, but then releasing software that dominates the market-place. Windows 1.0, for example, was released (very late) in November 1985. It wasn't until 1990 and Windows 3.0 that Windows became widespread. The mass popularity of the Win 3.x product line came as a big surprise — not least of all to Microsoft. Though the end of the 1980s, they, along with just self-appointed computer experts, expected that the future would belong to OS/2, then a joint Microsoft-IBM project.

But the success of Windows 3.0 also pointed out its shortcomings. Built on top of 1981's DOS, it lacked long file name support and had a disconcerting habit of crashing, just when you started to rely on it. Taking OS/2 technology from the divorce with IBM, Microsoft announced an industrial strength alternative — Windows NT, to be completely rethink from scratch.

To head the development team, the company recruited respected software developer Dave Cutler, from Digital Equipment. NT was to have two major focuses: as a network server bringing the ease of a graphical user

face into a market dominated by Novell NetWare, and as a workstation, an competition with a wide range of Unix machines.

NT was designed, like Unix, to be portable — to run on a range of different processors, not just the Intel x86 line, like DOS, Windows, and OS/2. As well, it would support machines with more than one processor, letting it out perform standard DOS and Windows. It would feature industrial-strength security and stability.

But NT 3.1, the first version (named to appear to be in contrast with just-released Windows 3.1) like many other Microsoft first releases, underwhelmed the market. It looked just like Windows 3.1, but ran slower. It took up (for its time), a lot of hard drive space, and required a lot of RAM. (Compared with today, large hard drives and RAM were expensive and rare.)

The OS isolated software from direct access to the hardware. This was vital for improving stability, but meant that many DOS programs, and some standard Windows programs simply wouldn't run. As well, there were virtually no 32-bit Windows programs to take advantage of NT's strengths.

The next version, NT 3.5 and 3.51 were better. Performance was improved, RAM requirements were a bit lower. And Microsoft made a clever move.

While developing Windows 95 for the mass market, the company announced that 32-bit applications for Windows 95 waiting official Microsoft approval would need to run under NT as well. In a stroke, they created a critical mass of applications that provided native performance under NT as well as Win95.

NT 3.51 picked up sales, and could run on RISC processors including Digital's Alpha, the MIPS series (mostly on mainframes from NEC), and on PowerPCs: it still featured the now old-fashioned Windows 3.x interface.

Enter Windows NT 4

Version 4 brings the newest, Windows 95-style user interface to NT. Like earlier versions, it comes in two flavors: server and workstation.

The workstation version costs less, and will be used by more users.

As the name suggests, the higher-priced Server version is aimed at corporate local area network servers replacing and working alongside Novell Netware servers.

While NT 4.0, like earlier versions, supports multi-processor machines and a variety of CPU models, the bulk of its sales are expected to be on single-processor hardware (or Intel-compatible computers — Pentiums and Pentium-Pros).

In theory, it will run on a machine with as little as 16MB RAM, but then again, Windows 95 will run as theory, on a 4MB machine. NT on a 16MB machine is like Windows 95 on 8MB — the bare minimum for acceptable low-end performance.

Expect to install at least 24MB (or better, 32MB) to keep users happy running NT while multitasking a couple of large applications. Set aside 90MB to 120MB of disk

space for the operating system.

With 1GB and bigger hard drives now standard, this should not be a problem.

NT 4.0 will run on a 486, but expect to install it on Pentiums or better. Unlike Windows 95, it makes good use of the newer Pentium-Pro series CPU. Like OS/2, it is a fully 32-bit operating system, and when running 32-bit software, it will fly on a Pentium-Pro.

Versus Windows 95

It falls behind Windows 95, however, in a couple of areas. Plug and Play is not yet well-supported. In fact, installing NT onto a new system may make sense to first install Windows 95. Note the hardware settings detected by Windows 95, and write them down, using that information to properly set up NT. NT 4.0 also uses a new driver model; as a result, neither Win 95 or older NT drivers can be used. Instead, fewer hardware options are supported.

Make sure any hardware on your systems is on the "approved for NT 4.0" list available on the Internet at <http://www.microsoft.com>. To make matters worse, unlike Windows 95, you cannot use

older DOS-level drivers for unsupported devices. If there is no NT 4.0 driver, you're out of luck.

The OS also doesn't support Advanced Power Management or hot-removal of PC-Cards. As a result, it is a poorer choice of an operating system for notebooks than Windows 95.

Along with the new, Windows 95-style interface however, NT includes support for most of Windows 95's new programming interfaces: ActiveMovie, DirectDraw, DirectInput, and DirectSound. As a result, NT 4.0 will provide a better multimedia and game platform than earlier versions of NT. If users expect to run many DOS games, however, they should be prepared to boot to DOS (NT 4.0 does support multiple operating systems).

All versions of NT also support the NTFS file system, which provides better support for large hard disks (greater than 6GB) than the old DOS FAT or even Windows 95's new FAT-32. **MSB**

Alan Zisman is a computer journalist and freelance living in Vancouver.

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Choosing a NOS

Selling network operating systems can be profitable — but challenging. Weigh your options carefully when getting into the NOS market.

by Green Sogness



For resellers thinking of entering the network operating system (NOS) market, the number of potential product lines to carry and decisions associated with each step, at first, seem to overpower the benefits. Asking yourself a few, strategic

questions, however, and establishing appropriate criteria, will lower the hurdle and present a clear vision for successful NOS reselling.

The benefits of selling network operating systems are powerful, and include profits on software, the opportunity to strengthen customer relations, and expand the service side of reselling.

Network operating systems is one area of technology where there are still high margins, and therefore large profits to be made. Through the sales and service process, resellers are in the ideal position to forge strong relationships with customers. Relationships increase the likelihood of future sales for complementary applications such as business productivity software for network management, database management and firewalls. Furthermore, the resale of the software provides the potential to sell NOS customers value-added services, including installation, network configuration, training and on-going support.

Once you've decided to enter the network operating system arena the choice of product may seem overwhelming.

This is where a list of clearly defined criteria can play a key role. It is necessary to evaluate product lines by asking yourself such questions as:

- Which environment should I support?
- What makes up a reliable network operating system?

- What features are important to customers?
- Is this a technology that is widely supported?
- What type of reseller program does the vendor offer?
- What kind of support can be expected from the vendor after purchasing its product line?

Features to consider

Among the environments to choose from are Unix, Netware or Windows-based environments.

The network operating system you choose to sell and support should be able to satisfy your customer's current and future needs.

Investment protection is a required element of any solution. A reputable network operating system manufacturer considers scalability a standard feature. Multiprocessing, support a wide range of network protocols, a high-performance file system and a processor independent architecture all contribute to a system's scalability and flexibility. It should also have a good, secure, self-recovering file system.

Customers looking for a new network operating system demand ease of use. Network operating systems with a familiar graphical interface and comprehensive management tools simplify tasks such as adding and deleting users, configuring printers and assigning access rights as well as more complex operations including remote-management and migration. Easy set up or installation is equally important.

The complexity of installation, auto-detection of devices and hardware, and device support are high on the lists of customers who have no time to waste with complicated systems.

Once you have examined a particular company's product line and you're satisfied it meets your strict standards, it's time to examine the company itself.

Specifically, you should look for a company that has made an effort to put together a team of sales and marketing representatives that focus solely on the Canadian reseller channel. This is an indication the company understands your business and is committed to the Canadian market-place.

A company that is dedicated to its channel has a variety of reseller programs in place and goes out of its way to make it easy to sell and support its product.

A good company will offer such tools as regular newsletters containing timely information that helps resellers improve marketing efforts, and dedicated toll-free phone support, giving them the latest information on all of the company's products, services and promotions programs.

In addition to telephone support, some companies have a fax-on-demand system which allows resellers to call in at any given time and request product brochures, case studies, technical whitepapers and technical product support documents.

Other companies take that service to another level and provide on-going seminar series featuring product and sales information relevant to resellers, plus software evaluation programs.

More and more, a reseller's service and support offer-

ings are becoming a key point of competitive advantage. Customers want to know that their reseller has the expertise to assist with installations, additions, training and provide service. Vendors, for their part, are increasingly looking to the channel to provide service and support functions.

With margins shrinking, services also enable skilled resellers with a complementary revenue source. Training is critical and, given that a network

operating system is a long-term investment, provides ongoing opportunities for continuing to work with satisfied customers. In today's first-past software industry,

new applications in the areas of remote networking, imaging, multimedia and on-line services are emerging constantly, and are demanded by customers whose needs continue to grow. A reseller must have a well-trained staff who can handle customer inquiries and problems by phone or on-site.

As competitive edge and relationships continue to play a crucial role in the success of resellers, the reseller needs to know that the products they carry will meet customer needs now and in the future. Identifying the issues which are important to customers, and knowing you can rely on a variety of support options now, and in the long run, means you can deliver the solutions people need in a contract they demand. **CCC**

Guan Sogomon is product manager for IT at Microsoft's On-Board Microsoft Canada Inc.

"The network operating system you choose to sell and support should be able to satisfy your customer's current and future needs. Investment protection is a required element of any solution."

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Multimedia Mania - Is This The Big Year?

by Edward Troupakis

It really seems that every year the age of multimedia has dawned. This is the year, we are told each year, that multimedia applications are going to progress from the consumer market to the busy corporate world of business applications.

Is this the year of the big transition?

Multimedia refers to the use of computers to integrate text, audio, graphics, animation, and video into specific programs. Technologies have advanced significantly, creating the capabilities. But the challenge for the industry remains the ability to make multimedia relevant for business use, and more than just for fun and games.

There is no question: multimedia has caught on in the consumer market, largely through the latest-generation video games, and to a somewhat lesser degree through education, reference, and education CD-ROM titles. Though there has been an attempt to leap into potentially appealing services such as on-line banking and interactive shopping, multimedia has stalled in the games arena. The problem appears to be the repackaging of content and information without taking full advantage of the potential for interactivity.

The Training Opportunity

Faced with that hit-and-miss on the home front, many developers have turned their attention to what they perceive to be the primitive in the office with interactive training, distance learning and the integration of multimedia into sales, marketing and business presentations. Presentation software has evolved from providing simple slide shows to allowing the integration of video clips, and sound with animation.

Videoconferencing looks like the most promising area for business multimedia with participants able to hear and see each other using digital cameras, plus video and audio capabilities built right into the computer. Using the same computer environment, users will not only be able to talk to each other but at the same time share text and graphics.

Intel Corp. is banking on the success of videoconferencing to drive the sales of its next generation, multimedia-supporting

Pentium Pro semiconductor chip. The Gartner Group forecasts revenues of more than \$4.7 billion for the desktop videoconferencing market by 1997.

Historically, Apple has been the hardware platform that offered the most multimedia capability — with outstanding features like built-in video capture and excellent sound capabilities.

As computers are being used more and more as communications tools, all operating systems will be challenged on the multimedia front. Apple views corporate learning and computer-based training as the most promising prospect for multimedia with immense opportunity for exploratory visual-type learning.

"Games are the vanguard of multimedia and push the edge of the media," says William Powell, market development specialist for Apple Canada Inc. "In education (multimedia is useful) for its visualization capability. You can add a real dynamic."

Compaq Computer Corp. on the Windows side is perhaps less enthusiastic about multimedia. It divides its line into two brands. The Prosignia brand is targeted to these people most likely to do the loads of things associated with multimedia while the business line has fewer or no multimedia features. "As far as the hardware goes a com-

puter is a computer," says Bryan Wray, consumer product manager with Compaq Canada Inc. "Some people want a computer just to do word processing and spreadsheets. Other people may want to create multimedia for the Internet. It depends."

Multimedia has Games Stigma

And because of the connection of multimedia with games, there is a stigma. "It is not until the corporate world is ready to embrace multimedia on every desktop," Wray says. "Since it's associated with games to a large extent, companies want their employees to be focused on doing productive things and not on entertaining things."

Wray doesn't see the average user using multimedia as a productivity tool on a day-to-day basis, because the need isn't there. While the functionality of multimedia is advancing at increments he says, he doesn't think the quality of the output is acceptable yet.

"I'm not sure the corporate world is ready to embrace multimedia on every desktop."

— Bryan Wray

As far as Fred Patterson, general manager of Micrographix Canada Inc. is concerned, multimedia's day is now. Its benefits are no longer reserved just for the graphics professionals and he's among his graphics software products at the business users instead of the professional graphics user. For a relatively low price, he says ordinary people can experience the effectiveness of multimedia.

continued on page 29



The Performer 1400 Series multimedia machine.

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Amershi Inc.

15 Ontario Court, Unit 200, Brampton, Ont. N6H 6L3
Tel: (905) 874-8800 Fax: (905) 874-8802

Amico Technology Ltd.

4100 Steeles Avenue East, Richmond Hill, Ont. L4B 1V1
Tel: (905) 882-2620 Fax: (905) 882-2620

ASCHI Group Canada Ltd. The

2200 Maple Union Dr., Etobicoke, Ont. M3C 2M5
Tel: (416) 231-1111 Fax: (416) 231-1111

Asia Link Computer

250 Glenview Dr., Unit 1, Richmond Hill, Ont. L4B 1K7
Tel: (905) 711-1538 Fax: (905) 711-1535
Tel/Fax: (905) 411-8079

Asia Office

Rich Hill, Ont. Tel: (905) 882-1427 Fax: (905) 882-1427

ASL Canada Inc.

2000 East Main Street, Mississauga, Ont. L4R 3A2
Tel: (905) 812-8218 Fax: (905) 812-8218

ATI Technologies Inc.

22 Commerce Valley Dr. East
Markham, Ont. L3T 7W8
Tel: (905) 842-2600 Fax: (905) 842-2620

Attache Canada Inc.

2200 East Main Street, Mississauga, Ont. L4R 3A2
Tel: (905) 812-8218 Fax: (905) 812-8218

ATM Technology Inc.

2100 North Campbell Ave., South Shore, Quebec, H9P 2H4
Tel: (514) 882-1771 Fax: (514) 882-1771

Atco Inc.

2000 East Main Street, Mississauga, Ont. L4R 3A2
Tel: (905) 812-8218 Fax: (905) 812-8218

AT&T

2000 East Main Street, Mississauga, Ont. L4R 3A2
Tel: (905) 812-8218 Fax: (905) 812-8218

B&B

1500 Sheppard Ave. East, Unit 100, Unit 100, Unit 100
Tel: (416) 742-7422 Fax: (416) 742-7422

Bellway Display

2400 Highway 10, Toronto, Ont. M3H 2E1
Tel: (416) 291-7600 Fax: (416) 291-7600

Bergan Systems Inc.

1000-1000 Highway 10, Toronto, Ontario, Ont. L5H 2H8
Tel: (905) 833-8871 Fax: (905) 833-8871

B&M Canada Inc.

300 Carleton Place, Toronto, Ont. M9B 6H8
Tel: (416) 874-2611 Fax: (416) 874-2611

Battery Boys Ltd.

244 Waterloo St., Unit 15
Mississauga, Ont. L5R 3J1
Tel: (905) 564-2661 Fax: (905) 564-2661

Battery Network B.H. (Canada) Inc.

200 Park Drive, Unit 100, Mississauga, Ont. L5R 3J1
Tel: (905) 871-2661 Fax: (905) 871-2661

Bay Networks Canada

3171 Yonge St., Suite 11
North York, Ont. M2H 4A1
Tel: (416) 313-8141 Fax: (416) 313-8141

Bell Computers

22 Ontario St., Suite 3, Cambridge, Ont. L4N 2M4
Tel: (905) 738-8337 Fax: (905) 738-8337
http://www.bell.com

Beemco Electric Inc. Entertainment

22 Windsor Court, Scarborough, Ont. M1V 1S7
Tel: (416) 291-0000 Fax: (416) 291-5321
Branch offices:
Tel: (904) 821-0000 Fax: (904) 821-0424

Bell & Howell Ltd.

200 Sunway Rd., Scarborough, Ont. L4V 2P2
Tel: (905) 850-0700 Fax: (905) 850-0900

Bendco Multimedia Inc.

100 Golden Square Rd., Suite 105
North York, Ont. M2N 3M4
Tel: (416) 490-6116 Fax: (416) 490-6118
http://www.bendco.com

Best Power Canada

1111 Burnhamthorpe Rd. E., Mississauga, Ont. L5T 1V5
Tel: (905) 264-655 Fax: (905) 264-7057

BMI Computers Inc.

2895 Chippendale Ln., Oshawa, Ont. M1V 2W8
Tel: (416) 420-1120 Fax: (416) 420-4013

Borde Marketing

11114 Hwy. 7, Unit 1, Markham, Ont. L3R 1A2
Tel: (905) 477-7772 Fax: (905) 477-9212
Branch offices:
Tel: (416) 333-9911 Fax: (416) 333-2812
http://www.borde.com

BR Systems International

21 Sheppard Ave. E., Unit 4, Unit 10
Toronto, Ont. M2N 6K6
Tel: (416) 752-2195 Fax: (416) 752-2545

BDCA Research Inc.

577 Burnhamthorpe Rd. Box 306
Oakville, Ont. M6K 1A6
Tel: (416) 682-2275 Fax: (416) 685-1599

Best Paint Software Ltd.

1201 E. 1st Street, Suite 770
Windsor, Ont. N9A 6Y9
Tel: (800) 867-0000 Fax: (800) 863-4917
http://www.bestpaint.com

Bonder Network Technologies Inc.

200 Dundas St. W., Unit 2, Unit 1, Unit 2, Unit 3
Tel: (416) 588-7127 Fax: (416) 588-7793
http://www.bonder.com

Boutard Canada Software Inc.

200 Avenue Rd., Markham, Ont. L3R 2E2
Tel: (905) 477-4364 Fax: (905) 477-4807

Bruce Computers & Electronics Inc.

22 Main St., Unit 18, Richmond Hill, Ont. L4B 1R2
Tel: (905) 775-3468 Fax: (905) 771-1707

Butcher International Corp.

3 Ave. Robitaille, Unit 2, Québec, Ont. H9B 3H6
Tel: (416) 645-0400 Fax: (416) 645-0300
Tel: (514) 361-5400

BSB International Marketing

2000 Sheppard Ave. E., Unit 2, Unit 2, Unit 2
Tel: (905) 628-8171 Fax: (905) 628-8814
http://www.bsb.com

BTV Electronics Inc.

400 Ave. Hwy. 7, Unit 41
Tel: (905) 477-1000 Fax: (905) 477-1001

BuenaVision Management Systems Inc.

2000 Sheppard Ave. E., Unit 2, Unit 2, Unit 2
Tel: (905) 477-1000 Fax: (905) 477-1001

Canby & Co. America Inc.

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Cooper System Development Corporation
28 W 31 St. & New York City 10018
Tel: (800) 547-2224 Fax: (800) 547-2223
http://www.cscorp.com

Coast Corp.
1580 Carling Ave. Ottawa Ont. K1L 6P7
Tel: (613) 238-0330 Fax: (613) 238-9700

Corporate Computer Systems Inc.
20 Rundle Dr. Montreal Que. J3R 5S1
Tel: (514) 475-2224 Fax: (514) 475-5555
Tel/Fax: (514) 337-9751

CRU Systems
110 Glenview Ave. Toronto, Ont. M6H 6H4
Tel: (416) 233-9190 Fax: (416) 233-9275

Creative Labs
3277 Centre Dr. Bldg. 8, Suite 301, Mississauga, Ont. L4W 6P5
Tel: (905) 238-8528 Fax: (905) 238-8541
Custom Service: (800) 868-1000
Technical Support: (800) 732-8155

CSS Laboratories Canada Inc.
5223 Leslie St. Suite 1
Richmond Hill Ont. L4B 1M7
Tel: (905) 881-5262 Fax: (905) 881-5441
http://www.csslab.com

Cybersoft Enterprises Inc.
220 Cochrane Dr. Unit 7, Markham, Ont. L3R 6J8
Tel: (905) 940-0868 Fax: (905) 940-2617

Cyscom Integrated Technologies Inc.
400 Burnhamthorpe Rd. West, Unit 218
Tel: (905) 773-1681 Fax: (905) 773-9817
http://www.cyscom.com

D-Link Canada
2887 Denison St. Mississauga, Ont. L5L 6B8
Tel: (905) 834-0260 Fax: (905) 834-0551
Tel/Fax: (905) 254-4512

DeKey Canada Ltd.
6575 Midland Ave. Suite 220, Markham, Ont. L3R 9J9
Tel: (905) 944-7814 Fax: (905) 944-3558

Diamond Electronics Canada Ltd.
170 Alder Ave. Markham, Ont. L3R 4C1
Tel: (905) 419-7290 Fax: (905) 419-7287

Duxtek Canada Inc.
15 Midland Ave. Unit 7, Markham, Ont. L3R 9J9
Tel: (905) 940-1121 Fax: (905) 940-1220

DAVEX DIS Distribution Inc.
161 Alder Road, Markham, Ont. L3R 3A4
Tel: (905) 469-2885 Fax: (905) 469-2351

French Office:
Richmond B.C. Tel: (604) 244-8912 Fax: (604) 244-8981
Montreal Tel: (514) 238-8301 Fax: (514) 238-1586

Dasher Technology
75 O'Brien Drive, Unit 1, Altonham, Ont. L3R 4C2
Tel: (905) 415-0438 Fax: (905) 415-0958

Data Accessories Corporation
170 Tupper Ave. Mississauga, Ont. L4L 6A7
Tel: (905) 850-5854 Fax: (905) 850-8948

Data Channel (Canada) Company
250 72nd Avenue
Mississauga, Ont. L5N 2H8
Tel: (905) 818-3332 Fax: (905) 818-5518
http://www.dccan.com

Datason
26 Ralston Rd. Markham, Ont. L3R 6J2
Tel: (905) 415-8855 Fax: (905) 415-8860
http://www.datason.com

DATA-SOFT Inc. (Canada)
260 1550 Campbell Ave. Richmond B.C. V6V 2G3
Tel: (604) 275-2584 Fax: (604) 275-2532
Tel/Fax: (604) 311-0267

DATASIMK (Canada)
121 Wilson Road, Markham, Ont. L3R 9J4
Tel: (905) 419-9947 Fax: (905) 419-9940

Datatech Technologies Inc.
113 Bedford Dr. Downsview, Ont. M3B 1Y8
Tel: (416) 869-1854 Fax: (416) 869-0862

Datatech Ltd.
1580 Beaver Creek Rd. Unit 108
Tel: (514) 331-9910 Fax: (514) 331-1458

Dave-Net Cabling Systems
115 Langstaff Rd. Unit 1, Scarborough, Ont. M1B 3A8
Tel: (905) 686-6371 Fax: (905) 744-7644

Daytek Electronics Corp.
2035 Burnhamthorpe Road Unit 107, Richmond B.C. V6V 1V6
Tel: (604) 270-2053 Fax: (604) 270-2022

Deltek
275 Highland Blvd. Suite 300
North York, Ont. M2H 4V9
Tel: (416) 493-0194 Fax: (416) 493-7930

Denim Computer Corporation
493 Ottawa Ave. Unit 204
Burlington, Ont. L7R 1A4
Tel: (416) 263-4833 Fax: (416) 263-2487

Devolution Electronics Ltd.
450 St. J. St. St. Catharines, Ont. L2R 5C7
Tel: (905) 947-8332 Fax: (905) 947-0370
http://www.devolution.com

Devco Associates
2771 Brimley Ave. Unit 11, Suite 11
Richmond Hill, Ont. L4B 1M1
Tel: (905) 771-8373 Fax: (905) 771-4373

Diagraph Canada
478 The Key Mall
Burlington, Ont. L7R 4S2
Tel: (416) 621-7800 Fax: (416) 621-1281
http://www.diagraph.com

Digipix Inc.
2175 Oakdale Ave. E. Suite 101
Mississauga, Ont. L4W 5P7
Tel: (905) 614-2454 Fax: (905) 614-2372
http://www.digipix.ca

Digital Equipment of Canada Ltd.
10 Corporate Dr. Markham, Ont. L3R 1V2
Tel: (905) 949-2000 Fax: (905) 949-9070

Digital Frontiers
601 Finch St. West, Toronto, Ontario M6A 4Y6
Tel: (416) 450-2841

Disks Knowledge Research Inc.
31 Sheppard Ave. E. 4th Floor
Toronto, Ont. M4M 1A1
Tel: (416) 220-8337 Fax: (416) 220-8340
http://232.pasmedia.com/dsny

Discount Computer Club
110 St. Catharines Rd. Unit 107
St. Catharines, Ont. L2R 5C7
Tel: (905) 947-8332 Fax: (905) 947-8332

DiscoverWare Inc.
525 John Ave. E. 2nd Floor, Calgary, Alta. T2P 0A7
Tel: (403) 277-9431 Fax: (403) 277-7457
http://www.discoverware.com

Domination Multimedia Inc.
120 Glen Ave. E. Unit 3
Markham, Ont. L3R 1V3
Tel: (905) 470-9850 Fax: (905) 470-9909

Dynacore Technologies Inc.
1102 Canfield Lane, Suite 252
Markham, Ont. L3R 1A2
Tel: (905) 472-6623 Fax: (905) 472-6624
http://www.dynacore.com

Dynasys (Canada) Inc.
22 Ralston Rd. Suite 208, Markham, Ont. L3R 6J2
Tel: (905) 710-0375 Fax: (905) 710-0369

Dynatek Automation Systems Inc.
250 Beaver Rd. Bedford, Ont. B4B 1G8
Tel: (905) 832-8860 Fax: (905) 832-8861
Branch office:
Toronto, Ont. Tel: (416) 636-3000 Fax: (416) 636-3017
Ottawa, Ont. Tel: (613) 581-0111 Fax: (613) 581-0147

Dynasys (Canada) Inc.
22 Ralston Rd. Suite 208, Markham, Ont. L3R 6J2
Tel: (905) 710-0375 Fax: (905) 710-0369

E-LOG Business Systems
10000 Hwy 7, Unit 2, Markham, Ont. L3R 9A7
Tel: (905) 849-8848 Fax: (905) 849-8838

E-Pack Canada Limited
2225 Burnhamthorpe Road Unit 4, Markham, Ont. L3R 6S3
Tel: (905) 475-8634 Fax: (905) 475-8542

Easipay
1000 Highway 7, Unit 2, Markham, Ont. L3R 9A7
Tel: (905) 849-8848 Fax: (905) 849-8838

Edge Interphase
1000 Highway 7, Unit 2, Markham, Ont. L3R 9A7
Tel: (905) 849-8848 Fax: (905) 849-8838

Eikon Technology Corp.
150 York St. Suite 200
Toronto, Ont. M5H 2B4
Tel: (416) 214-2800 Fax: (416) 214-2800

Eico Systems
2130 Hwy 7, Unit 2, Markham, Ont. L3R 9A7
Tel: (905) 470-7581 Fax: (905) 470-7584

Electro Systems Group Ltd.
2000 Kennedy Rd. Unit 200, Markham, Ont. L3R 9A7
Tel: (905) 470-7581 Fax: (905) 470-7584

Elitgroup Computer Systems
4000 Burnhamthorpe Road Unit 4, Markham, Ont. L3R 6S3
Tel: (905) 771-1057 Fax: (905) 771-1005
http://www.elitgroup.com

EMI Data Systems Ltd.
100 York St. Suite 200, Markham, Ont. L3R 9A7
Tel: (905) 470-7581 Fax: (905) 470-7584

Emulsoft
1000 Highway 7, Unit 2, Markham, Ont. L3R 9A7
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Tel: (905) 470-7581 Fax: (905) 470-7584

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Tel: (905) 470-7581 Fax: (905) 470-7584

Fastech Computer Ltd.
1402 17701 MacMillan Road Richmond B.C. V6V 2P9
Tel: (604) 279-8660 Fax: (604) 279-5387
E-mail: fastech@compuserve.com
Branch office:
Albany, Ont. Tel: (505) 289-3351 Fax: (505) 289-3518
E-mail: fastech@altelcomputer.com

Focus Electronics (CANADA) Inc.
4115 4311 Ave. E. Royal Richmond B.C. V6V 1V8
Tel: (604) 272-8596 Fax: (604) 272-3468

Fugro Canada Inc.
1500 Midland Blvd. East Mississauga, Ont. L4W 4G5
Tel: (905) 882-5624 Fax: (905) 882-5627

Galaxy Computer Products Inc.
1000 Highway 404 East, Markham, Ont. L3R 4P1
Tel: (416) 499-3131 Fax: (416) 499-3370
GALAXYBROW Distributing
1001 Main Street East, Mississauga, Ont. L5T 1M4

GE Micro Electronics Inc.
2000 (25th) 14th St., Mississauga, Ont. L4W 1A6
Tel: (905) 276-2222 Fax: (905) 276-2247
Tel/Fax: (905) 361-2948
Branch Office:
Toronto, Ont. Tel: (416) 492-6167 Fax: (416) 492-6799
Tel: (416) 222-2222 Fax: (416) 222-2247
Vancouver, B.C. Tel: (604) 273-9442 Fax: (604) 273-9444
Tel/Fax: (604) 273-9442

General Datacom Ltd.
4000-1070 Sheppard Ave. East, Scarborough, Ont. M2H 4Y1
Tel: (416) 459-6100 Fax: (416) 459-0248

Gensense Canada Inc.
100 Commerce Valley Drive East, Uxbridge, Ont. L7T 2K6
Tel: (905) 882-7588 Fax: (905) 882-7588

Genpak Marketing Inc.
20 Burnet Court, Mississauga, Ont. L4W 4L4
Tel: (905) 738-0090 Fax: (905) 738-5563
Branch Office:
Richmond B.C. Tel: (604) 273-5088 Fax: (604) 273-5052

GHL Computer Accessories
121 Glenview Blvd., Unit C, 177 Woodbridge, Ont. M7W 2E5
Tel: (416) 295-3559 Fax: (416) 299-6883

Globe Corporation
4157 Centre Street, Mississauga, Ont. L4W 4Y7
Tel/Fax: (905) 485-1131 Fax: (905) 485-4391
Branch Office:
Richmond, B.C. Tel: (604) 273-1155 Fax: (604) 273-0629
General, Ont. Tel: (514) 637-5486 Fax: (514) 637-7118
Whitby, Ont. Tel: (905) 889-0770 Fax: (905) 279-3322

GMI DataLink International Corp.
4150 347 Ave. East Ave. Vancouver B.C. V5P 4G8
Tel: (604) 521-4333 Fax: (604) 527-2662
Tel/Fax: (604) 527-4646
Branch offices:
Richmond B.C. Tel: (604) 273-1188 Fax: (604) 273-1131
Tel/Fax: (604) 273-1234

Golden Design Systems
2228 Metcalf Avenue, Scarborough, Ont. M1V 2P7
Tel: (416) 293-1883 Fax: (416) 294-2546
Branch Office:
Ottawa, Ont. Tel: (613) 739-0775 Fax: (613) 739-6208
Richmond B.C. Tel: (604) 276-1131 Fax: (604) 276-1137

Group 1 Software
715 Donair Drive, Suite 516, Oakville, Ont. L6K 3V7
Tel: (905) 844-7775

High Mark Computer Products
125 E. Beaver Avenue, Mississauga, Ont. L7T 2J1
Tel: (905) 881-7552 Fax: (905) 793-2644

Horizon Band Corp.
180 A. Highway 416, Mississauga, Ont. L5T 2M6
Tel: (905) 799-2850 Fax: (905) 799-1930
Branch Office:
Richmond B.C. Tel: (604) 276-6271 Fax: (604) 276-5187

Huslett-Packard Canada Ltd.
1150 Spectrum Way, Mississauga, Ont. L4W 5K1
Tel: (905) 896-4541 Fax: (905) 298-4239
Tel/Fax: (905) 897-9887

Itasca (Canada) Ltd.
4100 Corporate Blvd. E. Mississauga, Ont. L5N 2J8
Tel: (905) 876-6788 Fax: (905) 876-6749

Interpro Canadian Enterprises Ltd.
250-11101 Brimley Road, Richmond, B.C. V6V 1V2
Tel: (604) 279-0918 Fax: (604) 278-3981

IBM Canada Ltd.
1800 Bayview Ave. E. Markham, Ont. L3R 6Y7
Tel: (905) 484-4700

Imagix Technology Inc.
1000 East Beaver Creek, Richmond B.C. V6X 1Y4
Tel: (604) 261-1800 Fax: (604) 261-9051
Tel/Fax: (604) 261-8272

Impulse Computer Corporation
2700 Rogers Road, Mississauga, Ont. L5N 2H7
Tel: (905) 896-2000 Fax: (905) 835-5950
Tel/Fax: (905) 846-1171

Ingram Micro Inc. (Canada)
2700 Rogers Road, Mississauga, Ont. L5N 2H7
Tel: (905) 264-8404 Fax: (905) 269-8000
Branch Office:
Mississauga, Ont. Tel: (905) 264-8795 Fax: (905) 264-2124
Ottawa, Ont. Tel: (613) 228-0996 Fax: (613) 228-3390
Calgary, AB. Tel: (403) 261-0331 Fax: (403) 261-4779
Richmond B.C. Tel: (604) 276-6357 Fax: (604) 276-6358

Inventel Electronics & Computer Industries Ltd.
1241 Finch St. North, Vancouver, B.C.
Tel: (604) 364-6771 Fax: (604) 364-8057
E-mail: inventel@inventel.com

ISI Personal Computers (3D Microsystems)
1000 Steeles Ave. W. Markham, Ont. L3R 9J2
Tel: (905) 475-8822 Fax: (905) 475-7644

Jaba Systems Inc.
615-4041 Court, Markham, Ont. L3R 9T2
Tel: (905) 477-6161 Fax: (905) 477-6161

Kao Information Systems Canada Inc.
1000 Steeles Ave. W. Unit 47, Markham, Ont. L3R 9J2
Tel: (905) 477-7601 Fax: (905) 477-7600
Branch Office:
Mississauga, Ont. Tel: (905) 896-2799 Fax: (905) 896-2795
Richmond, B.C. Tel: (604) 435-8000 Fax: (604) 435-9530

KMI Telephones Inc.
1910 Wilket Ave., Unit 5, Markham, Ont. L3R 9A8
Tel: (905) 449-7033 Fax: (905) 449-7033

Koski Canada Inc.
2500 Highway Ave. W. Toronto, Ont. M8W 1J9
Tel: (416) 764-8239 Fax: (416) 764-4928

Landmark Computer Exclusions Inc.
14000 101 Avenue, Richmond, B.C. V6V 1P7
Tel: (604) 269-0281 Fax: (604) 269-8157

Logic Marketing
128-1171 Industrial Road, Richmond B.C. V6V 2M5
Tel: (604) 271-1848 Fax: (604) 271-1848

LCF Advanced Technology Ltd.
Unit 4022, 15889 Central Road,
Richmond B.C. V6V 2G4
Tel: (604) 363-9638 Fax: (604) 363-9638

LCN Resources Inc.
495-12207 Cliffside Road, Richmond B.C.
Tel: (604) 279-0708 Fax: (604) 279-0705

Lexmark Canada Inc.
160 Royal Court Dr., Markham, Ont. L3R 6A2
Tel: (905) 477-2111 Fax: (905) 477-2053
Branch Office:
Richmond, B.C. Tel: (604) 276-7027

LG Electronics Canada Inc.
1700 Bayview Ave., Unit 100, Markham, Ont. L3R 9V7
Tel: (905) 676-9002 Fax: (905) 676-9178

Logic Controls Canada Inc.
11500 Brimley Road, Richmond B.C. V6V 1G2
Tel: (604) 271-2340 Fax: (604) 264-2998
Branch Office:
Scarborough, Ont. Tel: (416) 291-0884 Fax: (416) 291-0885

Logitech Canada Inc.
3075 Denison Dr., Mississauga, Ont. L5R 9M2
Branch Office:
Richmond B.C. Tel: (604) 276-2984

Lovell Group
41311111th Avenue, Richmond B.C. V6V 1V7
Tel: (604) 273-4000 Fax: (604) 273-7465

Master Enterprises Ltd.
41311111th Avenue, Richmond B.C. V6V 1V7
Tel: (604) 273-4000 Fax: (604) 273-7465

Master Canada Inc.
1000 Bayview Ave. Unit 2, Markham, Ont. L3R 9V5
Tel: (905) 475-5232 Fax: (905) 475-7774
E-mail: master@master.com

Markham Computer Corp.
201 Midland Road, Markham, Ont. L3R 9Y9
Tel: (905) 475-5100 Fax: (905) 475-5953
Branch office:
Richmond B.C. Tel: (604) 273-5114 Fax: (604) 273-5142

Matrox Graphics Inc.
1215 St. Regis Dr., Dorval, Ont. H9P 2Y4
Tel: (514) 315-2630 Fax: (514) 315-2637

Matrox Video Electronics Canada (Parsimex)
5770 Avenue 64, Mississauga, Ont. L4W 2Y3
Tel: (905) 276-3230 Fax: (905) 276-3247
Branch office:
Calgary, AB. Tel: (403) 275-3137 Fax: (403) 276-5483

Maxell Inc.
Richmond B.C. Tel: (604) 279-4217 Fax: (604) 279-4116
Albany, Ont. Tel: (514) 623-3357 Fax: (514) 623-3366

Maxell Canada
171 St. Regis Dr., Dorval, Ont. H9P 2Y4
Tel: (514) 623-3357 Fax: (514) 623-3366

Maxell Office
Branch office:
Albany, Ont. Tel: (514) 623-3357 Fax: (514) 623-3366
Richmond B.C. Tel: (604) 279-4217 Fax: (604) 279-4116

McKinnon Media Distributing
4170 128th Street, Surrey, B.C. V6V 2B9
Tel: (604) 275-9517 Fax: (604) 275-9516

Memory House Inc.
4205 107th Avenue Road, Richmond B.C. V6V 3G5
Tel: (604) 821-7178 Fax: (604) 821-1153
E-mail: mh@memoryhouse.com

Mittek Systems Corp.
2017 Main Street, Vancouver B.C. V5K 3G2
Tel: (604) 681-3333

Mitel Canada
200 Huron Drive, Brampton, Ont. L6Y 2Y9
Tel: (914) 240-7812 Fax: (914) 240-7803

Mittek Office
Branch office:
St. Laurent, QC. Tel: (514) 767-1891 Fax: (514) 767-1891
Richmond B.C. Tel: (604) 279-2445 Fax: (604) 279-1113

Microvaya
2041 Kingston Ave., Burlington, Ont. L7M 2Y4
Tel: (905) 332-4541 Fax: (905) 332-4141

Minghiang Technology Inc.
1700 Brimley Road, Unit 100, Mississauga B.C. V5M 2V7
Tel: (905) 276-4463 Fax: (905) 276-7361

Minivision Office Automation
175-1529 Avenue Road, Richmond, B.C.
Tel: (604) 279-0171 Fax: (604) 279-0169

MII Computer Supplies Co. Ltd.
40 Steeles Court 1, Markham, Ont. L3R 9M5
Tel: (905) 948-0808 Fax: (905) 948-6145
Tel/Fax: (905) 750-5225
Web site: <http://www.micromag.com>

Minivision Electric Sales Canada Inc.
Information: 1-800-367-0000
4288 140 Ave., Markham, Ont. L3R 9G2
Tel: (905) 475-7728

Mission Works Corp.
1520 Midland St., Suite 130, Markham, Ont. L3R 9V9
Tel: (905) 483-9079 Fax: (905) 483-9135

Microlink Information Systems Group
200 Midland Road, Toronto
Albany, Ont. L3R 9M7
Tel: (905) 567-7000 Fax: (905) 567-7237

Multimedia Effects Inc.
40 Wyndham Street, Suite 106,
North York, Ont. M2N 6L5
Tel: (416) 444-2574 Fax: (416) 444-2465
Tel/Fax: (905) 361-3514

Multimedia Solutions Inc.
Level 100, 260 St. 3rd, Calgary, Alberta, T2R 6N7
Tel: (403) 247-5411 Fax: (403) 247-7171

National Computer Products
116181 1170 Avenue Arthur, Mississauga, Ont. L5A 3A2
Tel: (905) 418-0400 Fax: (905) 452-5439
Branch office:
Richmond B.C. Tel: (604) 276-6357

NBS Business Forms
Branch Office:
Mississauga, Ont. Tel: (905) 645-4465
Richmond B.C. Tel: (604) 279-4217 Fax: (604) 279-4116
Calgary, AB. Tel: (403) 363-7330 Fax: (403) 363-7330

NBS Business Forms
Branch Office:
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Richmond B.C. Tel: (604) 279-4217 Fax: (604) 279-4116
Calgary, AB. Tel: (403) 363-7330 Fax: (403) 363-7330

NCC Technologies Canada

8222 Kennedy Drive Mississauga, Ont. L5T 2J2
Tel: (905) 890-9800 Fax: (905) 890-2083

Neotech

1470 Lombard Road Unit 1, Downsview, Ont. M3B 3C7
Tel: (416) 493-8055 Email: neotech@neotech.com

NMB Precision Inc.

270 Brimley Rd. E. Unit 404,
Scarborough, Ont. M1T 1A8
Tel: (416) 291-0579 Fax: (416) 291-0279

Branch office:

Windsor: Tel: (519) 932-0888 Fax: (519) 932-0888

Simcoe: Tel: (514) 244-9963 Fax: (514) 244-9969

Novell Canada Ltd.

7155 Steeles Ave. E. Markham, Ont. L3R 0Y3

Tel: (905) 940-2076 Fax: (905) 940-2380

Obidata

2700 Midland Blvd. E. Mississauga, Ont. L4V 4A8

Tel: (905) 238-4150 Fax: (905) 238-4401

Branch office: Tel: (905) 238-4401

Osprey Systems Ltd.

8011 14th Avenue E. Unit 10, Coquitlam, B.C. V3K 6C7

Tel: (604) 947-2707 Fax: (604) 947-2340

Oracle Corp. Canada Inc.

10012 Midland Road, E. Unit 404,
Mississauga, Ont. L4V 4A8

Tel: (905) 890-9800 Fax: (905) 890-2083

Oriontek Multifunction Canada Inc.

4444 Empire Parkway, Unit 4,
Mississauga, Ont. L4V 4B6

Tel: (905) 621-7700 Fax: (905) 621-3030

Pacific Foremost Tech. Corp. (Precision)

#1424 (1424) Central Ave. Richmond, B.C. V6V 3K2

Tel: (604) 275-0051 Fax: (604) 275-0050

Pacific Rim Computers Corp.

Unit 134, 12301 Glenview Rd., Richmond, B.C. V6V 2M6

Tel: (604) 275-0752 Fax: (604) 275-0758

Pacific Royal Enterprises Ltd.

3871 Steeles Ave. E. Unit 10, Markham, Ont. L3R 0Y3

Tel: (905) 470-2121 Fax: (905) 470-2123

Branch office: Tel: (905) 470-2121

Packard Bell Electronics

1444 Sutter St. Mississauga, Ont. L4T 1Y5

Tel: (905) 566-1123 Fax: (905) 566-1127

Pat-Tec Marketing

1180 Sandhill St. Etobicoke, Ont. M9T 2P9

Tel: (416) 754-3172 Fax: (416) 754-3173

Not fax: (416) 653-2051

Pathtek Solutions

Box 4, 217 St. James St. E. Calgary, Alberta T2N 2T7

Tel: (403) 275-5646 Fax: (403) 253-2759

PC Craft Inc.

75 Front St. E. Unit 4, Markham, Ont. L3R 8J9

Tel: (905) 475-3172 Fax: (905) 475-3181

PC DOCS Group International Inc.

45 Southview Blvd. Unit 100, Toronto, Ont. M6R 3B2

Tel: (416) 465-4923 Fax: (416) 465-4928

PC Two Two Three Computer Corp.

1180 Bayview Ave. Unit 100, Scarborough, Ont. M1T 1A8

Tel: (416) 294-0940 Fax: (416) 294-0941

Branch office: Tel: (416) 294-0940 Fax: (416) 294-0941

Peripheral Express Inc.

7115 14th Ave. Suite 7, Markham, Ont. L3R 8T1

Tel: (905) 513-1077 Fax: (905) 513-2759

Branch office:

Richmond, B.C.: Tel: (604) 275-0051 Fax: (604) 275-0050

Calgary, AB: Tel: (403) 275-0051 Fax: (403) 275-0050

Edmonton, AB: Tel: (780) 275-0051 Fax: (780) 275-0050

St. Catharines, ON: Tel: (905) 621-7700 Fax: (905) 621-3030

Calgary, AB: Tel: (403) 275-0051 Fax: (403) 275-0050

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Calgary, AB: Tel: (403) 275-0051 Fax: (403) 275-0050

Calgary, AB: Tel: (403) 275-0051 Fax: (403) 275-0050

Pioneer Electronic of Canada Inc.

200 Atlantic Avenue, Montreal, Que. H3B 2P9
Tel: (514) 344-7027 Fax: (514) 344-7028

Not fax: (514) 344-7028

Powermatics Computer Inc.

500 Allen Road, Unit 75, Markham, Ont. L3R 8Y5

Tel: (905) 476-1545 Fax: (905) 476-1546

Powersoft Systems Ltd.

200-1000 15th Ave. S. Suite 200, E. C. 100, 1000

Tel: (503) 582-7000 Fax: (503) 582-7000

Progress Marketing Inc.

100 7700 Glenview Road, Richmond, B.C. V6V 1M6

Tel: (604) 275-0051 Fax: (604) 275-0050

Not fax: (604) 275-0050

ProData

Unit 8, 2540 Midland St. Unit 8, Markham, Ont. L3R 8Y5

Tel: (905) 476-1545 Fax: (905) 476-1546

Proview Enterprise Company Ltd.

2200 1st Ave. Suite 1000, E. C. 100, 1000

Tel: (604) 275-0051 Fax: (604) 275-0050

Protek Microsystems

100 7700 Glenview Road, Richmond, B.C. V6V 1M6

Tel: (604) 275-0051 Fax: (604) 275-0050

Provincial Products

2000 15th Ave. S. Suite 200, E. C. 100, 1000

Tel: (503) 582-7000 Fax: (503) 582-7000

Pucka Computer Corp.

500 15th Ave. S. Suite 200, E. C. 100, 1000

Tel: (503) 582-7000 Fax: (503) 582-7000

QDI Computer (Canada)

1111 15th Ave. S. Suite 200, E. C. 100, 1000

Tel: (503) 582-7000 Fax: (503) 582-7000

QDI Computer Inc.

1111 15th Ave. S. Suite 200, E. C. 100, 1000

Tel: (503) 582-7000 Fax: (503) 582-7000

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Tel: (503) 582-7000 Fax: (503) 582-7000

QDI Computer Inc.

1111 15th Ave. S. Suite 200, E. C. 100, 1000

Swedish Computer Corp.

1701 Alameda St. Toronto, Ont. M9W 1S7
Tel: (416) 574-7000 Fax: (416) 574-1255

Swi Microsystems of Canada Inc.

100 Denison St. Waterloo, Ont. L2R 9B9
Tel: (505) 477-6745 Fax: (505) 477-5473

Surrey Image Ltd.

6571 Alton Road Burnaby, B.C. V5C 4M5
Tel: (604) 437-2861 Fax: (604) 437-2088

Supercom

8711 Denison St. Markham, Ont. L3R 9P9
Tel: (905) 476-1700 Fax: (905) 476-1177
Branch office:
Richmond, B.C. Tel: (604) 276-2571 Fax: (604) 276-0857

Synetics Canada

853 Denison St. York, Ont. M6K 1G6
Tel: (416) 593-1100 Fax: (416) 593-1118
Tel: (416) 448-8939 Fax: (416) 442-4118

Target Electronics

27 Dundas Street Toronto, Ont. M5B 1B9
Tel: (416) 592-8400 Fax: (416) 592-8810
Tel: (416) 592-8957

Teking Canada

1255 St. Joseph Road Richmond, B.C. V6V 1G7
Tel: (604) 273-9120

Tech Data Canada Inc.

8550 Glenhurst Road
Mississauga, Ont. L5T 2C8
Tel: (905) 470-8300 Fax: (905) 760-2330
Tel: (416) 950-1558
Branch office:
Richmond, B.C. Tel: (604) 652-0565

Tektronix Canada Inc.

705 Arrow Road Uppsala, Ont. M5H 2J4
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"Multimedia is an appeal to all the human senses," he says. "It appeals to sight, sound, smell, and emotion in an effort to create an instant lasting message. We have been able to incorporate everything but smell in the hardware and software we run." Appealing graphics and sounds enhance visual communication and empowers creative expression by reminding the viewer about the central message, he says. Graphics and multimedia will become imperative, he believes, as we communicate more and more over the Internet and have and need to overcome the barriers of languages and cultures.

More and more training and education companies are looking to multimedia as a means of delivering their services to their clients.

Because of its interactive element, with sound clips and animation, multimedia is viewed as the logical next step up from computer-based training, which has continued many of the conventional methods of learning from a textbook.

"The technology-based format is becoming an increasingly popular method of delivering training," says Christine Moore, IT training and education research consultant at International Data Corp. (Canada) Ltd. says. "It's seen as cost-effective. It provides just-in-time training and it fits in better with students' schedules. The only drawback is that it lacks a human element, which can be extremely restrictive."

Still, more than 76 per cent of the training market remains instructor-led. However, every year multimedia is making up a larger and larger percentage of training. Because of the software component, training has now become a product instead of just a service and has created an opportunity for wholesalers to sell into this market-place.

"Finally, we don't often get a lot of inquiries from our clients about where multimedia is going because they have a bigger

picture of the world," says IDC channel research consultant, Tony Oliver. IDC doesn't have a separate list in its analysis program for multimedia, lumping it into a catchall category it calls "other peripheral products" that includes CD-ROMs and sound cards but not high-end motion and software.

In 1995, within the wholesale distribution channels at Canada the other peripheral segment grew by 54 per cent, considerably faster than the rest of the distribution channel which grew by 26 per cent. Oliver anticipates

a growth of these peripheral products, especially in the wholesale distributor channels, because the packaged-oriented, commodity-type products, say this channel, better than complex multi-user UNIX systems.

"Multimedia is probably the most ambiguous term

you'll ever hear," according to Glenn Wilson, business development manager for Kinetix, the multimedia subsidiary of Autodesk Inc., which makes 3-D animation and paint programs.

"It is like artificial intelligence was in the 1980s. You heard about it though you never actually saw it. But (AI) is actually naming your street lights and your car's emission control system. It is a technology that is underlying. People will be using multimedia, but it's not going to called multimedia."

"MIS people are being very Calvinistic. They are gatekeepers of seriousness."

—David Jones

While multimedia is already a part of life now, it's going to increase exponentially in the future, Wilson says. Just as every PC sold today has a CD-ROM, a video card, high-end color and sound capabilities, he thinks every PC will have MPEG video and higher end sound capabilities.

While the consumer side is driven by video games, the corporate side is driven by what users need to get the job done. "In the corporate world, if you don't have that sexy presentation, it's just not going to fly," Wilson says. The three markets Kinetix addresses are: high-end film and video broadcast producers; games producers; and architects and mechanical engineers, who are using multimedia to build realistic models to offer a visual preview of their plans.

The multimedia and animation business is growing at a phenomenal rate, Wilson says, and this is an opportunity for wholesalers and resellers to get into an area where "there are still margin dollars to be made."

With so many PC sellers assembling and selling direct for low margins, the way to make money, he advises, is to sell true multimedia PCs. "Anybody can put together a PC and add 16MB RAM and a sound card and call it a multimedia PC. But a real multimedia PC requires specialty cards and connectivity that you have to source and those are the opportunities to make some money from PCs again."

Multimedia defines categories. David Jones, group-product manager multimedia for ATI Technologies Inc. says. Every time a multimedia technology such as CD-ROM, for example, becomes mainstream, it becomes its own selling category. To shape the new mainstream products, ATI is developing a TV tuner for the computer, video capture, MPEG playback and videoconferencing.

Inexpensive videoconferencing is the next practical use for multimedia, Jones says. The technology necessary for it to become mainstream are just becoming available and affordable. He sees videoconferencing as a boon to telecommuting because it will make it inexpensive to work at home, while still integrated into the workplace. The customer will want multimedia, he says, because it is there and so, complicated things that are enjoyable. "MIS people are being very Calvinist," ATI's David Jones says.

"They are gatekeepers of seriousness. But they can only stem the tide for four quarters. The sound card and CD-ROM drive they see as no business application but, it is now standard. We are pivoting towards a point where the word multimedia will disappear and become a quaint old expression." [E]



The Avid 2.0 video editing system, designed for the non-enthusiast, was developed by Apple Computer Inc. in conjunction with Avid Technology Inc.

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IBM Canada shuffles senior management position

IBM Canada Ltd. has announced George Khoury, vice president and general manager services, has left the company to take over as general manager services, Latin America — with headquarters in Mount Pleasant, New York.

Meanwhile, Ed Kilroy is moving to the position of vice-president and general manager services. He will assume responsibility for IBM's consulting group, systems integration, maintenance and installation management, network services, education, training services and managed operations.

Alan Hildbrand becomes vice-president and general manager, marketing. He will be responsible for marketing IBM's server products, including the AS/400, RS/6000, System/390, storage systems and IBM printing systems.

Norbert Dzwiliak takes over as vice-president and general manager, software and network computing. He will handle marketing of IBM's software, networking and Internet products.

In other news at IBM Canada, Greg Gulyas becomes general manager, System/390, and Francois Ryan takes over as general manager, networking.

Ned Loford, on assignment from IBM Canada to IBM U.S., has been named vice-president, network computing.

Quarterdeck's Besteiros resigns from his CEO post

Quarterdeck Corp. has announced the resignation of its CEO, Gaston Besteiros. He successfully rebuilt Quarterdeck with a family of Internet-related products and an aggressive acquisition strategy before a recent third-quarter report triggered significant losses.

Besteiros, previously an executive at Apple Computer Inc., came to a troubled Quarterdeck in late 1994. In a short time, company valuation called him a visionary as he took Quarterdeck from a memory-management products company to one with a multifaceted line of products centering around the Internet. The company, under Besteiros' control, grew from US\$27 million to US\$142 million in revenues, with five strong quarters.

An executive search to find a successor is underway. Until then, board member King R. Lee and Assistant Treasurer, Quarterdeck's current senior vice president and head of its Utilities Business Unit, will manage the company under a temporary Office of the President. Lee ran the company under similar circumstances before the arrival of Besteiros.

Besteiros recently joined Quarterdeck's executive team after Quarterdeck acquired VeriSoft where he was CEO.

Quarterdeck's reformed Besteiros will continue as a director and consultant.

Compeq appoints market manager, commercial sector

Compeq Canada Inc. has appointed Cheryl Gilbin as the market manager, commercial sector.

She recently joined the Richmond Hill, Ont.-based company after more than 10 years at marketing and sales with other high-technology companies.

Most recently, Gilbin established and operated the Canadian business development and marketing functions for Bell Syntex Inc.

Devilcon shuffles executive suite, seeking profitability

In an effort to regain profitability, Devilcon Electronics Inc., of Sudborton, has cut 17 jobs and made some management changes.

Douglas Prosser has resigned as vice president of technology and director and George Ross, former vice-president of marketing, has become regional sales manager for the western United States. Geoffrey Bennett, who took over as chief executive on Aug. 2, announced the changes, saying Devilcon needs to refocus its operations and bring results in line with its revenues. Devilcon deals telecommunications equipment.

Ingram announces round of promotions

Wellesley, Ont.-based distributor Ingram Micro Inc. (Canada) has announced a slew of promotions affecting top management.



Bob Carbery, who has been with the organization since 1984, has been promoted to senior vice president, finance and administration. According to Ingram, his accomplishments include development of the company's credit function, implementing strong financial controls and managing foreign exchange activities.

Andrew Kieran has been promoted to senior vice-president, purchasing. Since he joined the company in 1989, Kieran has overseen the company's growth to more than 500 vendors and 30,000 SKUs.



Gordon Schofield has been promoted to senior vice-president, sales. According to Ingram, he has helped solidify relationships with Canadian resellers and has helped build the Ingram sales team, since he joined the company in 1994.



Also at Ingram, Martin Kishitok has been promoted to senior director, sales, customer markets division. Christine Givoni has been promoted to director, purchasing, and Al Nadeau has been promoted to senior manager, technical services. [ENR]

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- ▶ Satellite speakers will receive audio input (and output sound) even when the subwoofer is turned off
- ▶ Subwoofer is available separately and is compatible with most leading external computer speaker systems
- ▶ Adds a full 16-watt (20-watt maximum) of audio power to upgrade most computer speaker systems



J-312

- ▶ 1-way shielded powered speakers
- ▶ 3" driver focused in a beam reflex cabinet
- ▶ 100-10,000 Hz frequency response
- ▶ Controls for greater volume level
- ▶ Power on LED
- ▶ 11 1/2" x 6 1/2" x 4"

J-590

- ▶ 2-way shielded powered speakers
- ▶ 4" woofer, 1 1/2" hi-fi tweeter
- ▶ 100-10,000 Hz frequency response
- ▶ Controls for greater volume level
- ▶ Power on LED
- ▶ 11 1/2" x 6 1/2" x 4"

JAZZ product when available from Brands (608) 771-1888 and Green (514) 745-0530

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